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- A *billion* times more storage than an Amiga

Full details and analysis page 2

FUTURE SHOP!
The man who'll change the world page 6

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MIND-BLOWING!

Fastest machine on earth unveiled

An inconceivably fast computer has been launched in the US which is capable of mind blowing power.

The machine is so powerful that it will be used to make calculations hitherto impossible. It took America's top scientists three years to develop and costs a staggering $30 million (about £19 million).

- The NCube 2 Scalar supercomputer delivers 60,000 million instructions per second. State of the art home micros can muster up about four MIPS. In effect, the NCube is 15,000 times faster than the Archimedes.
- It is massively parallel utilising 8,192 processors all running simultaneously. Low end computers only have one central processor.
- Storage capacity weighs in at 500 million Megabytes – enough to hold a 2,000 page biography of every man, woman and child in the UK.
- It can deal with 1,000 business transactions in a second, which is ten times faster than ever before.

Oregon based NCube hopes the computer will be used for business applications as well as scientific research – the traditional home of super computing.

Sales of the machine aren't likely to exceed 200 throughout the world. In the UK the University of Wales in Cardiff has ordered a cut down version to deal with incredibly difficult mathematical problems and the British Medical Research Council will use one for work on DNA frequencing and genetics work.

The NCube's speed is astonishing. It can work out a typical Mandelbrot set equation in 0.1 of a second. That would take an Archie six minutes and a Beeb around six days.

"This really gives people power which they've never seen before. It's truly awesome," said Andrew Gladstone of NCube's UK distributor Arrow. "You don't sell one of these every day but we expect some companies to implement it as a massive database."

NCube's Bob Angus told *Express*: "This machine will have a much broader appeal than super computers of recent years. It's very, very efficient."

Shell Oil will use an NCube for Seismic imaging. The machine will be able to plot underground maps in hours rather than days.

One company uses the machine to store retinal identification records. It has seven million pairs of eye scans on the computer any one of which can be called up within one second.

NCube's president Stephen Colley said: "This is the most powerful computing system available and it can tackle not only today's largest problems but also open new realms of problem solving, larger computing formulations and the definition of currently unimaginable problems." ■

• Taking the NCube route: Incredibly fast, monstrously expensive

The NCube has the storage capacity of a billion Amigas. To duplicate that storage using Commodore machines you would need a desktop the size of Bristol.

If you laid the Amigas in a row end to end they would circle the globe fifteen times. It would take an F16 Fighter 17 days going flat out to fly from one end of the row to the other.

Anyone contemplating saving up for an NCube has a hard task ahead. It would take you 1,200 years working full time at McDonalds to get that sort of money together after tax. If you're still interested call Arrow on 03727 42557.

Sega handheld on the way?

Expectation is mounting that Sega will launch a handheld games machine in the near future.

The firm is understood to be in the process of development although details are terribly thin on the ground. However, given the activities of Atari and Nintendo on the handheld front (*Express* passim) such a move would appear to be logical.

Indeed, Sega's representatives in the UK are publicly agreeing that it would "make sense" to launch a small version of its successful console. "It would be a logical move but when and how I don't know," offered a spokesman. ■

• Putting the console in your hands? Sega handheld in the offing

Joys of spring

Every now and again you're targeted with the wackiest of ways to improve the performance of your machine.

The latest idea is a way to enhance the feel of the ST's keyboard. All you have to do is insert a tiny spring under each of the keys giving typing that extra bouncy feeling. This luxury, from ISM, costs £15.

ISM is keen to stress that the tedious task of prising every key open and fitting the key in takes minutes. *Express*'s ST has promptly undergone the fiddly operation and does indeed feel better for it.

Apparently, 5,000 ST owners in the USA have already made the change. If you're interested ISM is on 0983 864674. ■

• Spring into action: ISM's curly cure

Radiation: public concerned

An overwhelming 71 per cent of computer users fear there is a health risk from prolonged use of monitors, according to a survey published last week.

It also reveals that 94 per cent of users would prefer low radiation monitors rather than their present standard models, if they were given the choice.

PC Business World magazine polled some 350 computer users on behalf of Taxan which manufactures low radiation monitors. The mag's Robert Walczy told *Express*: "There's no evidence that radiation from monitors is a health risk but people's perception is that there's a danger."

Speculation has increased in recent years that radiation from monitors can cause miscarriages, sterility problems in men, and skin complaints. ■

ST RISC SENSATION

The eventual upgrade to Atari's ST will be a RISC-based machine, it was revealed this week.

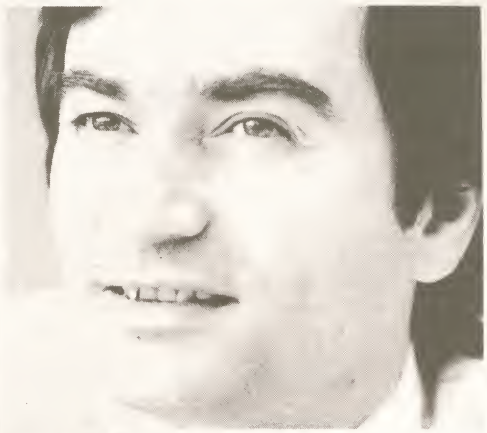
Atari wants to abandon its 68000 configuration and opt for an Archimedes-like micro boasting brilliant graphics and faster operations.

And, according to trade paper *CTW*, the new machine will be completely compatible with existing STs. As yet it is not known when Atari will unleash the new system but it is understood that the machine will begin life as an up-market specialist model.

Then, over the next three years, it will come down in price and take the ST's place as Atari's flagship machine. When launched it will probably cost around £1,000.

Atari UK boss Bob Gleadow explained: "The ST has come down-market to become what we believe to be a first time buyer's machine for the next three years. What we need to do now is look at providing a new up-market second time buyer's machine. It has to be very fast and almost a work-station."

RISC (Reduced Instruction Set Chip) has been successfully utilised at the low- to middle-end of the market by Acorn with its Archimedes. ■



• Taking a RISC: Atari's Bob Gleadow

SHOWING OFF

• The show must go on: Atari show to continue

The computing world was buzzing with excitement last week with the announcement of a new multi-format computer show and the resurrection of two old shows.

The completely new event – called The Spring Computer Show – has been pencilled in for spring 1990. The organisers say it will fill the gap left in that part of the computing calendar. The spring event will be held at Olympia – home of the original PC show.

Meanwhile, the Commodore and Atari shows are to be brought back to life. Both hardware manufacturers are to stage their own events after Database decided to scrap the shows.

It is understood that Commodore will be working with Database to organise the event whilst Atari is going it alone. The Commodore show will be held at Novotel, Hammersmith on 17th to 19th November. Dates and other details concerning the Atari show are yet to be arranged.

The organiser of the Spring show hopes some 30,000 people will attend the event and it is pitching for 200 vendors including all the major hardware manufacturers.

The show will be held from 4th to the 6th of May 1990. Organiser Peter Brameld told *Express*: "There is a feeling that there are too many machine-specific shows which are boring. We want to change that."

Although the period from January to September is seen as comparatively quiet on the low end computing front, spring usually signals a blip in purchases of products and new launches. "It will be an excellent platform for new products," said Brameld. ■

Turn your telly into an Amiga

If you can't afford to buy an Amiga but want to see excellent graphics here's your chance.

Ace Computer Supplies has put together a video featuring twenty top public domain demos of colourful graphics and animation. The firm reckons owners of humble machines crave for the chance to view top notch computer generated colour and sound.

Initial demos include *The Juggler*, *Flight of Dreams 2* and *World of Wonders*. Ace also plans to include game demos in the near future. It costs £4.99 and is available on 0430 872395.

Meanwhile, HotShot is about to let loose its second games demo video which includes an interview with Domark. That's on 0206 751217. ■

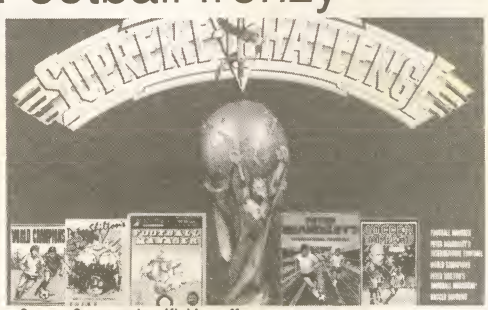
Clik crashes out

Long-established mail order company Clik has gone bust with debts of more than £140,000.

The company has been put into voluntary insolvency by boss Lynn Clarke. She said the bills simply could not be paid. Clarke is selling her house to pay back money owed to the bank

Anyone who has sent money off to Clik and is waiting for games faces, unfortunately, the prospect of losing their cash. ■

Football frenzy



• Soccer Spectacular: Kicking off

Soccer mad computer owners are being offered a five strong compendium of famous footie games.

***Supreme Challenge Soccer Spectacular* is coming out on the big three 8-bit micros and boasts a line up of *Football Manager*, *Peter Beardsley's International Football*, *World Champions*, *Peter Shilton's Handball Maradona* and *Soccer Supremo*.It costs £12.95 (£16.95 disk).**

Publisher Beau Jolly isn't stopping at a football compilation. Sports-specific packs are being planned for the near future. More on 07372 22003. ■

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QUEEN OF THE HACKERS

A Chicago based woman faces ten years in jail after allegedly recruiting impressionable youngsters to defraud large companies by computer hacking.

Lynn Doucett has been accused of setting up a network of 60 teenagers throughout the US who were employed to hack into computers and obtain people's credit numbers which they then used to access services. Doucett, 35, then pocketed some $1.5 million raised by the teenagers, some of whom were as young as 14.

She is currently being detained in Chicago charged with computer fraud – her trial is pencilled in for early August. Some of the young hackers are also being charged although they will not be incarcerated.

Like Charles Dickens' devious Fagin she set about exploiting the dubious talents of youngsters for her own ends, say US secret service agents. Doucett made contact with the teenagers by logging onto bulletin boards around the country. She then taught them how to hack into computers and told them which networks to break into.

US Secret Service agent James Huse – who helped track Doucett down – told *Express*: "She was the leader of a national conspiracy which at one time consisted of about 60 young hackers. This is the largest hacking network I've ever come across."

He said: "She got them intrigued by the prospect of gaining access over telephone lines to forbidden places. For them it wasn't defrauding anybody. It was just playing a game."

Secret Service agents (who are responsible for tackling computer crime in the US) were alerted to the operation when various companies found they had been defrauded. They followed Doucett because she is well known as "an old hand at white collar crime". She was previously convicted of computer fraud in Toronto.

"When we began our investigation we assumed that we would find adults sending out the phoney orders," said Huse. "We were jolted to discover the kids were 14 year-olds. This woman was exploiting their fascination in a new medium. We all hate to see kids getting involved in something like this."

Leading the case was Chicago-based secret agent Mike Cleary. He told *Express*: "We tracked back some of the hackers after they had penetrated various systems and found her to be at the centre of the operation. We arrested her last April and she's now being detained at the Metropolitan Correction Centre in Chicago.

"We call her the Queen of the Hackers."

COMMENT

Cut and paste

The new National Curriculum requires schoolchildren to be familiar with computers: word processing, database and spreadsheet management and so on.

Now the Government cuts spending on information technology education by £5 million – by nearly a half.

This will reduce the number of advisory IT teachers by a similar margin, thus putting more pressure on already overworked teachers who will presumably be expected to take more of the computer teaching responsibility themselves.

Learning to use a computer is far more complicated than learning to drive. Few people would want their children to be taught to drive by someone just learning to drive themselves, yet it seems that computing is to be taught by people who are just picking up the subject on their own (probably in their own time too).

Computers can be an invaluable time and tedium-saving tool – any micro owner can tell you that. They can be a legitimate leisure tool. But they can also degenerate into a glorified toy. If children don't get the right impression first off they will treat computers as a mystical box of tricks that can play nice games which are far more interesting than the patchily taught and boring 'proper' uses being demonstrated in lessons.

Time and again Britain has lost out because of insufficient investment in education and technology. If cuts like this are made at such a grass roots level it is difficult to see how any amount of training investment made later by trade and industry is going to remedy things.

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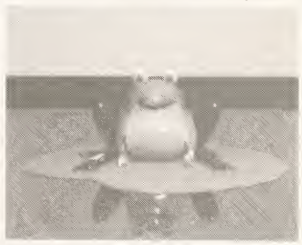
Arting around

Budding Amiga artists now have the chance to show off and win some exciting prizes by entering the Edinburgh International Festival 2nd Computer Animation Competition.

Leading Commodore hardware and software distributor Amiga Centre Scotland is again organising the competition, with the finalists entries due for display at the Computer Animation Exhibition.



Closing date for the entries – which can be on disk or PAL VHS videotape – is 24th August. Further details from Amiga Centre Scotland on 031 5574242.

• Spawning a masterpiece: Can you beat this?

Amstrad the benevolent

Amstrad's first venture into charity sponsorship has raised a tasty £165,000 for the Muscular Dystrophy Group.

Boss Alan Sugar was in the thick of the Amstrad Pro-Celebrity tennis tournament. Indeed, the tough tycoon managed to win along with Vijay Amritraj stuffing Terry Wogan and John Lloyd in the process.

Other names on hand included Frank Bruno, Jimmy Tarbuck, Janet Street-Porter and Nigel Dempster. Sir Richard Attenborough – who is president of the MDG – presented the silverware to the winners.

Although Sugar is said to be extremely generous in private to worthwhile causes this is the first time his usually surly company has openly backed a charity. ■

• Sir Richard, Amritraj, and Sugar – winning for charity

This is the modem world

Portable PC owners can now send and receive data on the move via cellular telephone and the latest cellular modem from Racal-Vodata.

Weighing in at 710g (1.5lbs), the £600 modem allows you to communicate with other modem users and access networks like Micronet and Prestel. Even in severe reception conditions, data throughput is claimed to be sharp.

With full autodial/ autoanswer facilities, the modem has a low power consumption, minimising any reduction of "talk-time" on battery-powered Vodafones. According to Racal-Vodata, the CDLC modem brings the "portable office" one step closer – the unit is itself certainly small enough to make little difference to anyone already carrying a portable computer and Vodafone.

Versions of the modem compatible with the the NEC 11A and Panasonic C series of cellular telephones are available now, and others for the Autoline and new Talkman ranges from Nokia Mobira and the MCR40 from Philips are on the way. An NEC 9A version is also under development, and the modems will thus cover nearly 40% of the total Vodafone subscriber base.

Nomadic executives can find out more on 0635 33251. ■

SNIPPETS ● SNIPPETS ● SNIPPETS

● A new monthly magazine is to be published concentrating on the virus problem. Virus Bulletin will be full of editorial and will include contributions from various experts. More on 0844 290396...

● Tandy tells us that all the unsavoury hacks covering this year's Wimbledon are using its special computer support service. The journos are basically doing their thing on Tandy portables and then wiring it through to the sports desk.

● Business software firm Lifetree has undergone a simultaneous management buy out in the UK and its US offices...

● Clares has just finished a sequence of animations for HTV Wales put together on the Archimedes. The work was done for a new Welsh language quiz show. It features aeroplanes flying around and scrolling background. Clares was responsible for work on kiddies show *Going Live*...

Six million disks drafted in...

Amstrad has bought six million blank three inch disks in an attempt to quench the disk drought.

The firm has acted swiftly after talk that the disks would run out in this country. Amstrad PCW, CPC and Spectrum +3 owners can now breath a sigh of relief. But Amstrad says the very number of PCWs sold threatened supplies.

"The success of that range has soaked up vast quantities of the disks, but I can now assure users that they will have no problems buying these," said the firm's Peter Roback.

• Disks galore: Amstrad bought six million of 'em

Top of the Populous!

Playing God is as popular as ever given the success of the Electronic Arts game *Populous*.

Now the American firm is releasing a data disk for players looking for new challenges. *Populous: The Promised Lands* will run on the ST and Amiga and contains five new worlds such as The Wild West, Samurai Land and Revolution Francais. It costs £9.99. ■

£5m SLASHED OFF SCHOOL COMPUTERS

The Government has lopped £5 million off its planned expenditure on computer education.

This follows a report last week from the National Curriculum Council recommending that more emphasis should be placed on computer education.

Spending on information technology in schools has been slashed from £13.8 million to £8.28 million. According to the Government the cuts are being made to divide up monies amongst all sections of the new national curriculum.

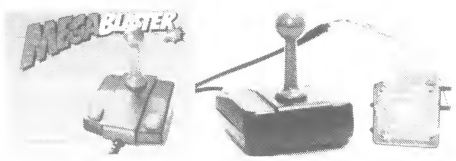
However, teachers view it as a lack of willingness by civil servants to back the bold new ideas with hard cash

The successful 650 strong posse of advisory computer teachers looks to be in anger. That was set up last year to advise on computer education throughout England and Wales. At the time it looked as if the Government really would give support to widespread computer education.

Many are now worried that those ideals have gone out of the window.

• Classroom cutbacks: Youngsters will suffer

Stick to the point



• Clickety click: Megablaster

A sub-£10 joystick offering the advantage of microswitches has been unveiled.

Waggling leader Konix has fitted its Megablaster with the clickety mechanism. Microswitches are becoming increasingly popular since they offer more feedback and accuracy, and tend to last longer than normal "engines". Most microswitch sticks cost at least £15.

The Megablaster costs £8.99. More on 0495 305972.

New look Microlink

Bulletin board Microlink is promising comms fans a bagful of new features on its service.

The board has recently switched from residing on Telecom Gold to Istel Inet. Microlink says it wanted to leave Telecom in order to expand.

The board's roots are very much in the hobbyist area but now it wants to get serious. Users are promised access to thousands of databases covering everything from business to the weather as well as a bigger leisure board.

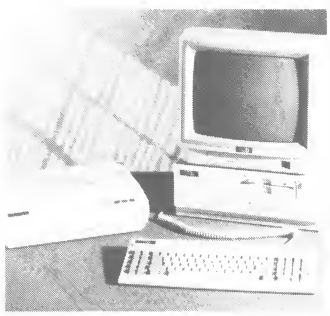
Boss Derek Meakin told *Express*: "We were dissatisfied with Telecom Gold and wanted to go elsewhere. With Istel Inet we'll really have room to expand and offer users the best."

All-in-one PC for £500

PC manufacturer Micro-vitec is to bundle its low end PC2 with a dot matrix printer for under £500.

The Cubpack will come with a Mannesman-Tally 80 column printer as well as Ashton-Tate's integrated package *First Framework* for £495. The software includes spreadsheet, word processor, database and graphics application.

The more expensive PC4 will also be bundled – that machine comes with a 20 Mb hard disk and will cost £940. However, buyers will have to move quickly. The offer only lasts until the end of July.



• In at the cheap end: PC2

TOP 20 *Full Price* GAMES

1	**Robocop** OCEAN *Spectrum, C64, CPC, ST, Amiga, Others*		1
2	**Silkworm** VIRGIN *Spec, C64, CPC, ST, Amiga*		13
3	**Forgotten Worlds** US GOLD *Spectrum, C64, CPC, ST, Amiga*		2
4	**Microprose Soccer** MICROPROSE *Spectrum, C64, CPC, ST, Amiga*		3
5	**Dragon Ninja** OCEAN *Spectrum, C64, CPC, ST, Amiga*		5
6	**Emlyn Hughes** AUDIOGENIC *Spectrum, C64, CPC*		6
7	**Run the Gauntlet** OCEAN *Spectrum, C64, CPC, ST, Amiga*		4
8	**Out Run** SEGA/US GOLD *Spec, C64, PC, ST, Amiga, Others*		16
9	**Football Manager 2** ADDICTIVE *Spectrum, C64, CPC, ST, Amiga, Others*		7
10	**Populous** ELECTRONIC ARTS *ST, Amiga*		12
11	**Kenny Dalglish** COGNITO *Spectrum, C64, CPC, ST, Amiga*		10
12	**Running Man** GRAND SLAM *Spectrum, C64, CPC, ST, Amiga*		8
13	**Operation Wolf** OCEAN *Spectrum, C64, CPC, ST, Amiga*		14
14	**Crazy Cars II** TITUS *Spectrum, CPC, ST, Amiga*		9
15	**Rampage** SEGA *Sega*		NE
16	**Kick Off** ANCO *C64, ST, Amiga*		19
17	**Millenium 2.2** ACTIVISION *ST, Amiga*		NE
18	**Renegade 3** IMAGINE *Spectrum, C64, CPC*		18
19	**Double Dragon** MELBOURNE HOUSE *Spec, C64, PC, ST, Amiga*		20
20	**Red Heat** OCEAN *Spec, C64, CPC, ST*		NE

TOP TEN *Budget* GAMES

1	**Postman Pat** ALTERNATIVE *Spectrum, C64, CPC*		1
2	**Enduro Racer** HIT SQUAD *Spec, C64, CPC, ST, Others*		2
3	**Daley Thompson** HIT SQUAD *Spec, C64, CPC, Others*		5
4	**MiG 29** CODE MASTERS *Spectrum, C64, CPC*		NE
5	**Bomb Jack 2** ENCORE *Spectrum, C64, CPC, Others*		RE
6	**Treasure Island** CODE MASTERS *Spec, C64, CPC*		3
7	**Game Over** ALTERNATIVE *Spectrum, C64, CPC, Others*		NE
8	**Army Moves** ALTERNATIVE *Spectrum, C64, CPC, ST, Amiga, Others*		8
9	**1942** ENCORE *Spectrum, C64, CPC, Others*		4
10	**Arcade Flight Sim** CODE MASTERS *Spectrum, C64, CPC*		9

RE re-entry • NE new entry • Last week's positions

Compiled by Gallup

The charts shown are based on the Open Market, that is, retailers who stock a broad range of products. All charts shown are copyright of Gallup.

THE LINE ON KEYLINE

The Keyline terminal could be in as many as three million homes by the early nineties.* Express *sent Andy Storer to interview the brains behind the box, ex-Acorn main-man, Christopher Curry...

• Red hot Curry? Ex-Acorn boss is putting his money where his mouth is on home shopping

The Keyline computer is an A4-sized, battery powered terminal masterminded by Christopher Curry, founder of Acorn and designer of the BBC micro. At first sight its built-in calculator, text editor, calendar/ clock/ alarm and phone number store features might lead one to place it in the same familiar territory as the Z88 and Psion Organiser. But there the similarity ends. Keyline represents a much wider and far-reaching concept altogether.

The intention is to provide the world's first armchair access to hundreds of data bases, ranging from home shopping to financial and information services. What's more, the terminals will be free and communications conducted in everyday English. By March next year some 500,000 Keyline terminals will begin to be made available across the country; the first batch of a planned 3 million units.

Since leaving Acorn in 87, Curry's devoted all his time to the project, but its seeds go back to 1982 when Acorn brought out The Communicator. This was an all purpose comms device designed to hook up to Local Area Networks, Teletext and telephone services such as E-mail and financial data. But, as Curry is the first to point out, The Communicator never took off. " Although it tried to explore the emerging market of people with information to sell, it failed because it wasn't worth people investing several hundred pounds in a unit that could only provide a few up market facilities".

The concepts of Keyline arose from its ashes. Curry believed there was a revolution happening out there and it needed to be tapped, but it all depended on achieving a take-off point. "We're a knowledge-based society, but knowledge is disseminated in a pedestrian fashion...What is needed is a terminal that accepts natural language input, has a low-cost of manufacture, a low-cost of operation and a large number of suppliers. These equal a large number of consumers". That take-off point is just around the corner, he believes.

Supplying the Suppliers

In the last six months, Keyline has attracted twenty members to join its Keyline Club - a means of pooling information to set the ground rules for the innovative electronic shopping Keyline represents. Club members include the NatWest and Midland banks, Gateways, Asda, Mothercare, Freemans, Grattan, Ladbroke and Littlewoods. Curry has a building society on the books too but points out," we have a nice cross-section of very significant information and retail suppliers already committed but we're still after a major department store"

But the haul in attracting big spenders has been a long one and the Keyline group has come

Cutting costs

Keyline connect time will be charged at local rates wherever you're calling, as the system uses the Packet Switch Network for long distance calls. PSN charges will be paid for by the service suppliers. Keyline terminals will be made available free save for a small deposit of around £35. A 'weeding' process, similar but unlikely to be as in depth as that operated by credit card companies, will also determine who can get their hands on a terminal.

Security

– or, how do you stop little Johnny ordering 5 grand's worth of Cola?
Securing purchasing will be in the hands of the suppliers but is likely to involve a series of passwords depending on the amount and cost of goods ordered and the type of business being conducted. Otherwise each terminal will have its own password for general use.

In order to make the unit completely secure though, which it'll need to be if it's to be used for personal banking, Keyline claim the ROM contents will be unreadable as there'll be no external buses. Try taking the top off the chip and reading it with a laser and it'll scramble itself. This is the same protection technology going into smart cards.

But is it that revolutionary?

Teleshopping has existed in the States for some time now, having sprung up with the growth in the huge cable TV network where several channels are solely devoted to commercials. These range from guys in studios selling the likes of vacuum cleaners ("Only 13 left now, ring in and buy yours now by leaving your credit card number... ") to specially constructed supermarkets where remote cameras track along aisles focusing on goods and awaiting your touch on the remote control to freeze frame the picture and order the item.

But the whole phenomenon there is culturally different from over here and, in any case, Keyline is so technically unique as to dispense with the catch-all notion of teleshopping.

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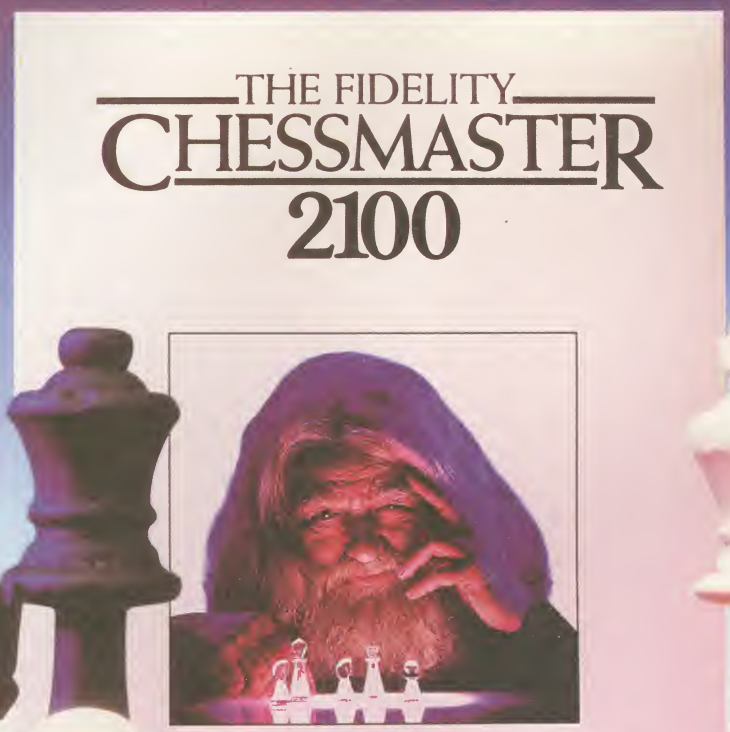

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up against a lot of misconceptions. "Major retailers say 'we've spent the last twenty five years trying to get people into our shops'... they believed shopping to be fun... they pump more money into building huger and huger supermarkets thinking they're providing a social event, but our research has shown that people only enjoy shopping for clothes and jewellery...shopping for food is an absolute chore". Probably the key factor in changing their minds has been the the gradual move into distance shopping as seen in the growth of mail order. "It proves you don't need to see goods in order to purchase them."

Once the Keyline scheme is launched, familiarity will doubtless attract more suppliers but in the meantime, Keyline is also provoking interest from specific information suppliers. The 6 million elderly and infirm people who can't get to shops constitute a large market as does the supply of information targeted at them by the Social Services and groups like Help the Aged.

• Terminal One: Keyline's shopping centre

Everyday English

If a terminal is to be designed to give access to a large number of suppliers for millions of consumers it goes without saying that the means of communication needs to be plain and simple. It's no use expecting the public to get to grips with some DOS style Command Line Interface. But, as Curry points out, even multiple choice systems like Prestel are fundamentally flawed in their design for 'distance selections'.

"Research at Cambridge into Naive User Interfaces showed that systems like Prestel, where you had six or eight menus with categories and sub-categories, meant that any choice you made needed to go through half a dozen levels. Apparently on each level you had a 20% chance of making a mistake so by the time you went through all six your chances of getting what you wanted were minute. By the time you make two or three mistakes and have to start again you feel insulted. And humiliated by a machine of all things... and that's after you've spent a fortune in on-line costs."

So the Keyline terminal will dispense entirely with menu systems by using a restricted natural language interpreter. The key is to make the enquiry system task-orientated: "You give the machine a task to do to the best of its abilities... if you want to buy a train ticket you just say 'what's the best route between two towns and what train do I catch to arrive by 6'". Obviously, such sophisticated parsing can't reside in a home terminal, the secret is to put the real computing power at the supply or 'head' end. Each supplier will have their own host computer system costing up to £800,000 running software allowing that supplier to design its own 'front-end' for greetings and special offer routines.

So to keep things practicable, simple and low-cost, Curry suggests that you do the first pass on your machine at home "You say you want to know about the price of something - and then interpretation passes to the head-end where the host computer, using the same interface as the domestic terminal, uses artificial intelligence and expert systems to supply a full transaction system, a full accounting system and a full stock control system."

But Curry reckons the interpreter will go even further than that. "Besides providing spelling mistake correction and partial matching it will be able to anticipate a users' mistakes once it gets to 'know' him".

Delivering the Goods

After selecting ordering an item via your terminal you might wonder how you actually get your hands on the thing. The options here are decidedly open. Besides delivery direct to the home, Curry suggests an imaginative use of pubs and petrol stations as drop-off points for deliveries. There'll no doubt be drive-in pick-up points too. When it comes to perishable items then the motor bike courier services across the country could be in for a big surge in demand. ●

Electro-chunnel to France

Kays, the U.K.'s brand leader in mail order shopping, already has a 1,000-page teleshopping catalogue up and running. But the service is only available in Belgium and France – via the French Minitel videotex service – with terminals in some five million homes and offices. Shoppers can order up to 35,000 items by credit card and have them delivered to their homes or to any address in the world.

Keyline tech spec

Processing

- 8/16 bit HCMOS 11 MHz processor
- 128K program and database ROM
- 32k battery backed RAM
- Memory paging allowing expansion to 256K RAM and ROM

Modem

- V22 1200 b.p.s full duplex auto dial, pulse or tone auto-answer capability

Interfaces

- Smart card
- Printer

A smart card interface?

Curry believes smart cards will all but replace cash in the future. "One day I suppose people will exchange money by sliding their smart cards through cash exchangers". In Keyline they'll be used as application cards and for financial transactions but, as Curry concludes, "Such is the power of appeal of smarts and the momentum behind them, they're going to be a major force and they're going to change our lives more than anything else... people like to pay by cash and smart cards look very much like cash."

WIN AN ARCHIMEDES!

Yes, you can win a brand-new Acorn Archimedes A3000 plus colour monitor, worth £1000, in our mindbending competition.

We had one for review in issue 29, and we were impressed! The Archie is undoubtedly the Rolls-Royce of home micros, with blinding speed, astounding graphics and a fantastic sound chip – ideal for everything from games to high-powered academic and research applications. It's not bad at word processing either!

The machine isn't officially unveiled until the 1989 BBC Acorn User show on July 21st-23rd at Alexandra Palace. Most people will be going for a glimpse of the new Archie – but the lucky winner of the *Express* competition will be presented with theirs free at a VIP lunch on the first day.

To stand a chance of winning you have to answer ten questions. The first five are this week, the second five next week.

As easy as ABCDE

Here's what you have to do this week. Study the list of five characters below who've each bought an Archimedes. Then look at the list of software for the Archie which might be on display at the Acorn User Show and, using your skill and judgement, decide which software package each is most likely to buy. If, for example, you think that Dr. Brayne will most likely buy *Deathmash IV*, write 'A-1' and so on.

DON'T send in your answers yet – you need the answers to next week's questions as well to win.

A Dr Richard 'Dick' Brayne: Economics fellow at the Queen's College, Oxford. Using his Archie to work on his latest paper 'New perspectives on Monetarism'.

B Ron Turning: Taxi driver from Southend, Essex. Runs his firm and plans routes with the help of his Archimedes. His ambition is to be a racing driver.

C Wayne Pratt (17): Games playing freak from Surrey whose favourite film is Rambo.

D Robin Cash: Comedian from Ashby de la Zouch. Uses his machine to work out how much tax he can avoid paying.

E Owen Monet: Great-grand nephew of the famous painter. Penniless Fine Art student from Cardiff. Preparing a portfolio of computer art on his Archie.

1 Deathmash IV
2 Milton Friedman's Spreadsheet
3 Nigel Mansell's Breakdown Simulator
4 Tom Keating's Painting by Numbers
5 Ken Dodd's Accounts Planner

TWO TIMING?

We know you're all doing it! Nobody likes to talk about it, but you are. Perfectly respectable PC-users sneaking out of the office to ... play games. Using a Spectrum, an Amiga, an ST!
MGT knows all about you. That's why our product range is for business and pleasure.

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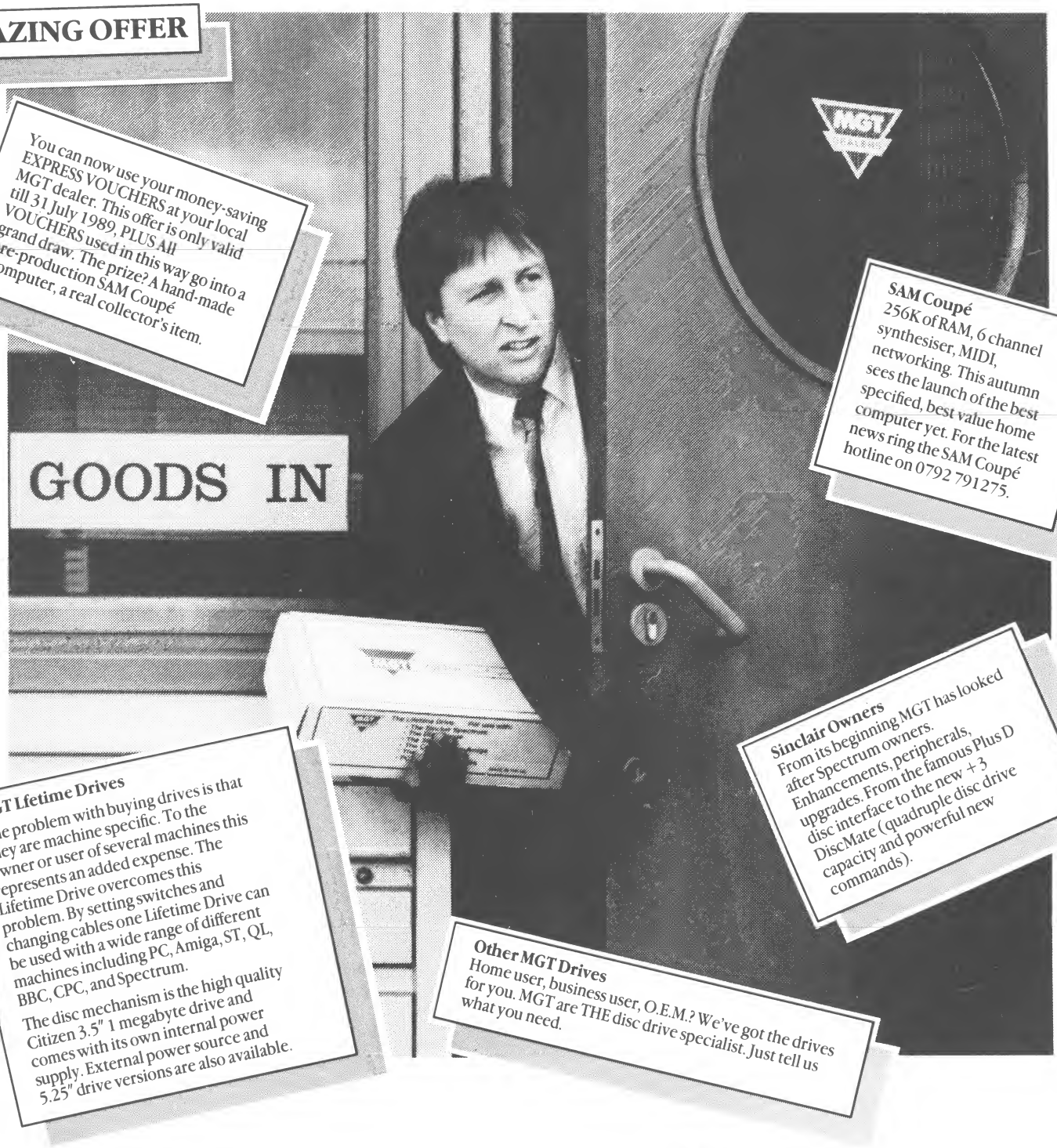
You can now use your money-saving EXPRESS VOUCHERS at your local MGT dealer. This offer is only valid till 31 July 1989, PLUS All VOUCHERS used in this way go into a grand draw. The prize? A hand-made pre-production SAM Coupé Computer, a real collector's item.



SAM Coupé
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The disc mechanism is the high quality Citizen 3.5" 1 megabyte drive and comes with its own internal power supply. External power source and 5.25" drive versions are also available.

Sinclair Owners
From its beginning MGT has looked after Spectrum owners. Enhancements, peripherals, upgrades. From the famous Plus D disc interface to the new + 3 DiscMate (quadruple disc drive capacity and powerful new commands).

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LAPPING IT UP

Do you need the power of a word processor, but with the portability of a notepad and pen? A laptop micro could be the machine you're looking for. Rik Haynes explains why...

Laptop micros offer probably the best trade-off between functionality and portability. You have the power of a word processor, which you can use in any location – from a train to a plane – for extended periods of time, thanks to their low power consumption. As we discovered last week, with the PC-compatible portables, the price for this much sought-after compatibility is the overbearing weight and size, coupled with the limited length of operating time due to the power demands of the displays and disk drives. With a laptop you just don't experience these problems.

The main strengths with laptops lie in their compactness, light weight and ease of use. Disadvantages come in the form of relatively poor (small) screen displays, and software and hardware incompatibilities with mainstream systems. To compensate for this failing, laptop manufactures normally provide communications link-up hardware and software, enabling you to transfer data files between your laptop and, say, a PC or Mac.

LAPTOPS, GREAT! BUT WHICH ONE?

From student to journalist, from stock controller to business executive, if you need a mobile word-processor – and have access to a standard micro at home – a laptop computer would be the perfect machine for you.

But which one should you buy? Despite its advancing years, the Epson HX-20 laptop is still a viable proposition, with its built-in mini-printer and cassette unit, and a varied range of peripherals and third-party applications software. Unfortunately, it's let down by the small LCD display. However, the current laptop market is dominated by two great decks – the Cambridge Z88 and Tandy 102...

CAMBRIDGE Z88

Processor: Z80 (CMOS) • RAM Memory: 32K expandable to 1.5Mb • Display: LCD (80 characters x 8 lines) • Built-in software: word-processor, database, communications, diary, spreadsheet, calendar and BASIC • Price: Z88 (on its own) £199.95 ex VAT, All-in-One Pack (Z88, 128K RAM expansion cartridge, mains adaptor, updated user manual, carrying case) £249.95 ex VAT, MacLite Pack (Z88, Z88-to-Mac software and cable, 128K RAM expansion cartridge, mains adaptor, updated user manual, carrying case) £299.95 ex VAT • Add-ons: 32K RAM expansion cartridge (£19.95), 128K RAM expansion cartridge (£49.95), 512K RAM expansion cartridge (£199.95), 32K EPROM expansion cartridge (£19.95), 128K EPROM expansion cartridge (£49.95), Z88-to-Mac Link (£59.95), PC Link II (£34.95), BBC Link (£24.95), modem (£172.45), mains adaptor (£9.95) • Manufacturer: Cambridge Computer on 0223 312216

Rob Ainsley: "Ideal as a word processing terminal, a sort of notepad for the micro you have at home. Watch the batteries though – they don't last as long as claimed and rechargeables lose your data if you're not careful. Your data is volatile, so you're best downloading it to your micro as soon as you get home. Great for writing on the train, but risky for writing up your six-month trip to India while you're there – unless you have a modem (but then of course you'd have the problem of finding a telephone in India). The rubber keyboard is odd, the space bar is sticky and a few commands quirky, but the screen is quite adequate, and overall it's perfect if what you want is to write on the move."

Colin Campbell: "It's light on the lap and on the pocket, which goes a long way when it comes to portability. Fast-moving word processing freaks can have no worries about carrying this around. All the wibbling about the Sinclairish dead flesh keys is a bit strong. Unless you're a complete fusspot you should find it comfortable and quiet. Switching such machines on for the first time is sometimes a dreadful experience but the Z88 is a doddle to get to grips with. It's no surprise that this laptop has won favour amongst diehard gadgeteers as well as pragmatic users."

Jerry Glenwright: "The Z88 micro – whilst enjoying moderate sales – has remained relatively obscure. Software houses are reluctant to support the machine and so, with only one third-party package available, the Z88 is severely lacking in usable software. Yet in spite of these setbacks, Sinclair's latest micro is actually one of the better laptops on the market. The keyboard – although constructed of the "dead-flesh" so typical of Sinclair – is fine for even prolonged sessions, file transfer is simple, it's light and highly portable and it has one overriding advantage: it's cheap! Think I'd probably use the £200 necessary to buy it as the basis for the purchase price of another portable though."

Rod Lawton: "The Z88 is attractively styled, has a neat

display (albeit with tiny characters) and is both light and incredibly slim. It would get an unreserved thumbs-up from me, but for the keyboard. Opinion is divided, but I find the squidgy keyboard ghastly. Inveterate two-finger typists might not find it much of a problem, but touch-typists beware."

EXPRESS VERDICT ★★★★★

Undoubtedly a great machine, in terms of both performance and price, the Z88 is definitely the best laptop to go for – its a pity about the spongy keyboard though.

HIGHLIGHTS	DRAWBACKS
• Very competitive price • Well supported • Light and compact	• Horrible keyboard

TANDY 102

Processor: 80C85 8-bit (CMOS) • RAM Memory: 24K expandable to 32K • Display: LCD (40 characters x 8 lines) • Built-in software: word-processor, communications, addresses, scheduler and BASIC • Built-in 300 baud auto-dial modem • Price: £299 ex VAT • Add-ons: 8K RAM expansion (£24.95), mains adaptor (£11.45) • Manufacturer: Tandy Computers on 0922 710000

Rob Ainsley: "The Tandy has a much more robust feel than the Z88, both physically and in terms of data storage. Keyboard is much better than the Z88 and easier on the fingers. Like a Yorkie bar, it's good and chunky. The inbuilt software isn't as comprehensive or useful as the Z88's, but then both machines are really word processing notepads and the extras are largely irrelevant. If you have one for Christmas, or are allergic to rubber, fine; otherwise go for the Z88."

Colin Campbell: "It's wonderful how Tandy has squeezed so much software into this. The designers clearly know what power laptop users want. So many features have a nasty side effect though. It's outrageously expensive for the home user and a teeny bit too heavy. Try and get the company to buy you one."

Jerry Glenwright: "Tandy's baby has been with us for quite some time now and is firmly established in the laptop market. And rightly so! A full-travel keyboard, excellent screen display, and wonderful collection of built-in software has guaranteed the 102 a large following. Why does it have to be so expensive though?"

Rod Lawton: "The Tandy starts off with the disadvantage of looking like it was designed in the sixties, yet it's extremely functional. The display is crude, ugly and only 40 columns wide, but the characters are easily read from a distance, and the contrast can be adjusted for any angle of view. Perhaps the machine's worst feature is its pitiful 32K RAM – even with maximum expansion. It's still enough, however, for several thousand words of text – more than enough to keep you going between downloading sessions at the office. Finally, the keyboard. It is very, very good, if a little noisy."

EXPRESS VERDICT ★★★★

The Tandy 102 is a nice little machine, with a good keyboard and plenty of features – albeit at a seemingly inflated price, especially if you don't need the built-in modem. Still, it's well worth a look, but we think the Z88 has the edge.

HIGHLIGHTS	DRAWBACKS
• Brilliant keyboard • Retains memory for 30 days	• A little too expensive • Display rather small

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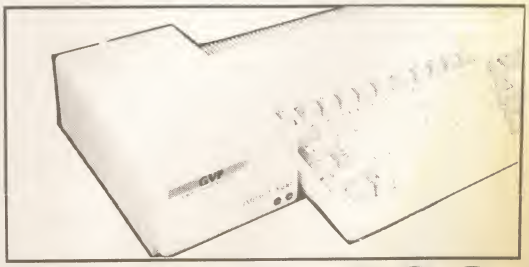

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EXPRESS MAIL

Dear Reader

More pages packed with another selection from our postbag and Rob Ainsley's replies. Have you got something to say? Make your voice heard in computing's liveliest letters page! Send your contributions to:
Express Mail, 4 Queen Street, Bath, Avon BA1 1EJ

PS. Sorry, we just don't have the time to give personal replies, whether you include an SAE or not. We're too busy putting Express together!

PLAYING SILLY BOGNORS

I must say I was somewhat surprised at Alan Reed's recent letter – I too have recently started attending the Bognor computer club and have found it a very lively and friendly group. True, people didn't fall upon me and go into raptures at my attendance, but what can you expect?!

Alan states he was subjected to rudeness and downright abuse (does he own an ST?) I have experienced none of this nor have I found it the least bit cliquey.

As a student psychiatric nurse I find Mr Reed's feelings of persecution very interesting, if he needs to discuss his problems further perhaps he would like to get in touch with me, my rates are very reasonable!

Andrew Hardy, Chichester, West Sussex

● ***Well, there you go. I must admit, Alan's letter didn't strike me as paranoid, just genuinely surprised that certain club members could be so unwelcoming. Let's hope it was just a one-off.***

A FELLOW OF INFINITE JEST

Last week you mentioned that Robert Cook (10 Thompson Ave, Kings Norton, Birmingham B38 8YD) runs *Oric User Monthly*. There is also a disk-based magazine, in English, called *Club Discoric*, available from a group of very enthusiastic ORIC users over in France. Subscription is 200 French Francs per year and for this you receive a quarterly disk or cassette-based magazine plus monthly bulletins, in print. The disk version uses SEDORIC DOS format which is one of the most powerful DOSs for an 8-bit computer. Each disk contains all the Public Domain. Games are also included but the French are particularly strong on utilities. Membership forms are available from myself and subscriptions are now being handled by an ORIC user in this country.

Here are some suppliers of ORIC products:-

- **Capri Marketing** (24a White Pit Lane, Flackwell Heath, High Wycombe, Buckinghamshire, HP10 9HR – tel: 06285-31244);
- **Software Cellar** (The Basement, 1 Hightown Road, Luton, Bedfordshire – tel: 0582-400861).

Disk systems:

- **Opelco**, Imperial Court, Station Parade, Virginia Water, Surrey, Buckinghamshire, GU25 4DH, or:
- **Dave Utting**, 47 Gainsborough Road, Leicester, LE2 3DE.

Finally, there is myself (the self-interest has crept in). A very large amount of Oric software is available on disk and I can supply it on 3", 3.5" or 5.25" format.

If I encourage 50 or so Oric users to write into you, will you start an Oric column? Dare you say no after what you have done for the 30 or so Atari 8-bit users or the 3 Archie users?

Allan Whitaker, Stalybridge, Cheshire

● ***Thanks very much for the info, and if the correspondence on the Oric continue we might get these letter headlines going to the end of the speech in 'Hamlet'.***

As for the Oric column, if I get 500 people to write in saying they don't want an Oric column, can we keep the ones we've got at the moment instead?

ENGINE PROBLEMS

Do you know if Micro Media have ever supplied anybody with a PC Engine? Or do they just spend all their time advertising saying that they're the only "official" importers of it?

I ordered one from them in early December, sent a cheque for £235 which was promptly cashed, and apart from a confirming letter, I have heard no more from them. For the last few weeks whenever I phone them up they say the SCART leads aren't of a good enough quality to send out. Are they telling me it takes over a month to make up a connector anybody with the smallest amount of electronic knowledge could do in ten minutes? If they cannot supply from last year, why are they still advertising – to keep their ailing company afloat perhaps.

M J Burley, Purley, Surrey

● ***Micro Media says it's now sorted this out with you. The story just highlights the problems of buying stuff which is imported in this way – though it seems unlikely there'll ever be an official way of buying the PC Engine, save going to Japan.***

ENABLED

My name is John. I am 44. I am also disabled in body, but not in mind.

Re the news item 'Disabled Interface Spreads its Magic' (*Express* 33 p5). Do you have an address to see if they could help me with my disabilities?

Can you also put me in touch with other Atari users? I have an Atari 520STFM, 1/2Mb internal disk drive and 1mb external, and a colour TV/Monitor.

Please could you give me the address of Frames in Liverpool because if I could get permission to visit and get an insight to the working of such a place, I would be grateful indeed.

John A Pritchard, Liverpool, Merseyside

● ***Only too glad to help, John. In case anyone didn't see the news story, it was about a headset by Bit 32 that can be used as a mouse to aid disabled computer users. It's now coming out for the ST and PC. Bit 32's address is Century Buildings, Tower St, Brunswick Business park, L:iverpool L3 4BJ, tel. 051 227 3232.***

The Atari National User Club is at 13 Weavers Walk, Courthouse Green, Coventry CV6 7LG, and I'm sure you can reach plenty of other ST users through them (we'll forward letters from readers to John as well, of course).

Afraid we have no info on Frames – perhaps some readers can help?

HEAVY PETTING

In this week's *Tech Tips* section there is a letter from a reader who has recently acquired a Commodore PET. Supersoft still stocks (as we have for over ten years) a wide range of software and reconditioned hardware for the Commodore PET range, from the 2001 and 3000 series to the 4000 and 8000 series. We even have brand new 8296 models for sale.

As I far as we know we are the only company which still publishes software for the PET, although admittedly it is a couple of years since we last released a new program. However our catalogue lists over a hundred programs from utilities to business programs to games, plus all sorts of add-ons. We do also offer a repair service. Details of this, and a free catalogue can be obtained by calling 01-861-1166.

Peter Calver, Harrow, Middlesex

● ***Thanks for the info, and before you persuade 50 of your friends to write in, there's absolutely no chance of getting a PET column.***

• Who says the Commodore PET is going down the pan?

CHART TIME

My top ten worst things about computing:

1. BASIC and all types of non-modular programming
2. Horizontally scrolling beat-'em-ups: *Dragon Ninja, Renegade, Double-Dragon*
3. Owners of that Sega with a keyboard, the big toy, the Commodore Amiga, those self-righteous owners of the most useless article since the Sinclair C5
4. People who say "Its all done with computers nowadays"
5. Morons who knock the PC because "the graphics re rubbish" – after all you wouldn't rally in a Rolls Royce, would you?
6. 58p computing weeklies who never answer my faxes
7. Software piracy – at all levels
8. Any system that doesn't have a hard disk
9. Anything with 'Ninja' in the title
10. Workbench

Paul Quinn, Bit by Bit Computer Services

● ***What are your most unfavourite things about computing? We might start giving mystery prizes for the best entries.***

MORE POINTS

1) Regarding my last letter (*Express* 31) Bedford is not in Buckinghamshire – we're called Bedfordshire (look on a map if you don't believe me.) So no more insults, OK? End of Geography lesson.

2) Please could you print the bit of my last letter you missed out.

3) In your A-Z, you claim the FIFO structure is a stack. Well, you're wrong.

4) Your system of rating games is a little crude to say the least. I think (but I am a BBC owner) you ought to make it a bit more comprehensive – say, marks out of 20 for sound, graphics etc and an overall rating so I still know which reviews to read.

5) Your Back Page of issue 30 – you know, the "Radio Times" was very funny but let's get this clear. Scott (who?) could not have bought "Virus" for Charlene's (ditto) A3000 because virus never came out on the Arch! It was called *Zarch*. And you interviewed Braben the week earlier. You must have amnesia or something.

6) Continuing on the A3000 theme, yes I do think it is overpriced, but not as much as you make out. It is not merely a slightly faster,

slightly more colourful Stamiga. That is like saying the ST is the same as a Spectrum. The A3000 may only look like that, but that is because a) you haven't considered the wealth of business and educational software available, and b) because no one has exploited it to its full potential by any means yet.

I think Acorn ought to get rid of the Beeb badge to bring down the price, bung in a decent monitor and they ought to be able, and with a bit of luck leave the price where it is. Now that would be good value, agreed?
Jeremy Benson, Bedford, Bedfordshire

● ***1) OK, OK, this was what we in the computer trade call a 'mistake'.***

2) No – like this letter before we cut it, it was too long.

3) No, you're wrong. We didn't say it was a stack, we said it was '...method of storing data in a list or "stack". If you don't know the difference made by inverted commas, ask your English teacher. There just isn't enough room in the A-Z to go into the differences between pipes and stacks.

4) Fair request, but this is a weekly, and we don't have time to go into such detail. Anyway, if you want my honest opinion, I think giving game ratings even in 10% gradings is a waste of time; subjective opinions are just not measurable like that. Films and books don't get percentage ratings in reviews, so why computer games, which are hardly less superficial?

5) OK, so we made another mistake. I'm flattered that you obviously read Express so carefully!

6) Agreed, but you seem to be suggesting that the Archie is therefore overpriced by the price of a monitor – say £150-£200 – which is what we've been saying anyway.

FUNNY BUSINESS

It's a little stupid to keep on comparing one computer with another. Like every other part of sales, different computers are for different markets, e.g. the ST is a fairly low price games/ mild business machine, whereas the Acorn is a big powerful computer with a big powerful price tag! We don't compare Minis with Porsches so why do so in computers!

I think your magazine is brilliant because of the humour which goes into every copy. Rik Haynes is a great journalist alongside Fielding Mellish (I go Bananas over that name).

By the way I own an ST, and while skimming through the computer columns I stopped on the Spectrum one. I used to own a Spectrum back in the mists of time but this column was great. I read it just because I like the writing style.

I don't really mind the odd copied piece of software as long as it's between friends and is a one-off, but I get really miffed when those stupid ignorant prats boast about how great hacking is, giving themselves pseudonyms like Jumpin' Jack Ass or something. If they're so cavalier in their attitudes then why not give your real name and then face the music!

I know a couple hundred hackers, crackers and packers will be catching the next train to Scotland but I don't care...
Dave "Yes, this is my real name" Boyle, Crieff, Perthshire

● ***Interesting to read the attitudes to humour in the recent questionnaire in Express. Of those who mentioned it, about 90% liked it strongly and about 10% disliked it strongly. (A good mark of someone who has no sense of humour at all is that they describe any joke they don't understand as 'juvenile' or 'schoolboy'). In any case it's part of the magazine and isn't going to go away.***

Glad you like the Spex column – take a bow (but no more money) Robin Alway.

HACKING OFF

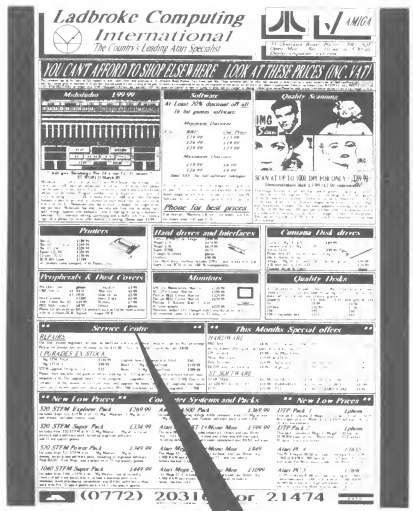
It seems that some hackers have hacked into two Scottish poll tax computer systems, and implanted viruses into them. What a shame (ha, ha, ha). Just remember who suggested it first. On to the subject of hacking in general, I see that WC Flush is like me a hacker, and I agree with everything he says. I know what you mean about the AA and their mailing lists, I made the mistake of joining them. Perhaps you'll feel better if I give your name to the Reader's Digest.
The Mad Man, Cambs

● ***Too late. The Reader's Digest have been plying me with their infernal Prize Draw nonsense for years. How come mainframes all have names like 'Catherine MacDonald' and not 'IBM System 38'?***

REPAIR YOUR EYESIGHT

In your 'Repairs' feature (*Express* 33) ST and Amiga owners are advised that they have no alternative but to return their machines to Atari or Commodore.

Ten pages further on, there is our advert which clearly states "our Atari trained engineers can repair all hardware in minimum time at competitive rates". This ad, in one form or another, has been stating this fact in *Express* for 12 months and *ST/ Amiga Format* for 18 months.
B Davies, Ladbroke Computing



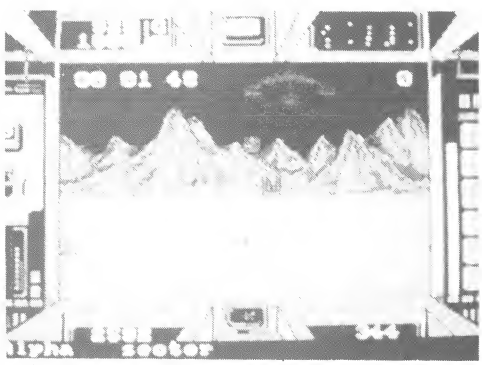
• This advert clearly states...

● ***Well, first, we don't see the ads in an issue until the finished issue comes back, and unfortunately we have to write the articles before that. I'm curious as to how your ad has been running for 12 months in Express (which started on November 12 1988) and 18 months in ST/ Amiga Format (which started in July last year)!***

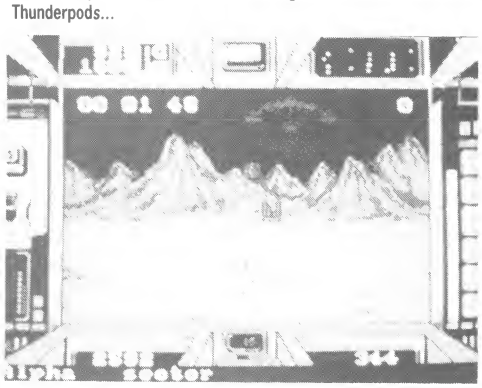
Fair enough, your ad is regular and it does state that you do repairs. Maybe we should have spotted it, but it's in extremely small print in one of several sections on the page.

SCREEN TEST

Did you know that every single week in the advert for the Tenstar pack from the Silica Shop, that the screen shots shown for *Terrorpods* and *Thundercats* are both exactly the same.



• Has anyone noticed the amazing resemblance between Thunderpods...



• ...and Terrorcats?

The fact that no-one seems to have noticed raises some questions, i.e. that a) either the Amiga is not that popular so nobody even reads the ads for it, b) the sort of people who do buy Amigas are too dumb to notice or c) it has been noticed but no-one can be bothered to do anything about it.

Seriously though, even though the coverage for my machine (the MSX) is virtually non-existent. I still think you have got a great mag, and is worth the cover price just for the humour in it.
David Honeyman, Perth, Scotland

● ***Well, so many games look like so many other games these days...***

Snippets

WHAT A BIND

...Someone asked if they could obtain binders for *Express*. Your magazine is the same size as the *Which?* magazine therefore their binders could be used...
Allan Whitaker, Stalybridge, Cheshire

● ***Brilliant! Saves us having to get some of our own made up.***

BACK HANDED

...Can I obtain back issues of *New Computer Express?*
Andy Braid, Fife, Scotland

● ***Yep. 75p per issue inc. p&p from The Old Barn, Somerton, Somerset TA11 7PY.***

COPY CATS (BUGS, ACTUALLY)

Thought you might be interested in these bugs. Top row are real McCoy, and the bottom are just cheap budget Code Masters simulators... or is it the other way round?
W M Brouard, Bath, Avon

● ***Hmm; is this evidence for the evolutionary inevitability of budget simulators?***

• Only their mothers can tell them apart

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GOING PUBLIC

When you've just spent a small fortune on your new micro, you can't afford a large one to get stocked up with software. But, as Jerry Glenwright explains, there's plenty of good stuff virtually for free in the Public Domain...

Software prices – particularly for 16-bit software – are notoriously high. You've all read the letters in the computer press from 'industry bosses' (with vested interests) giving detailed breakdowns of how they decide the price of games software. Ever get the feeling they trying to justify inflated prices?

Visit any computer shop and you'll see Atari ST and Commodore Amiga games retailing at £20 or more. PC games cost much the same and the price of serious software is incredible – PC owners think nothing of handing over several hundred pounds for a moderately usable word processor. DTP applications on both the ST and Amiga will relieve you of about a hundred pounds and there are plenty of other 'business' packages which break the hundred pounds barrier for both machines.

Many computer users are becoming wise to inflated software prices and are starting to rummage in the public domain as a possible source of good software.

And public domain software is good – in some cases excellent. Better by far than many of the commercial offerings in fancy packaging and, best of all, it's free and available from many sources.

The concept of a software public domain has been with us for the best part of a decade. Initially, the programs tended towards the obscure comms utility, machine code monitor and duck breeder's database, but in the last few years, the genre has opened out to encompass all types of software – games, utilities, business programs, graphics, astronomy programs, languages... something for everyone.

Supplies, supplies

Today, there are more suppliers of public domain than ever before, and every week more join the growing army just waiting to exchange their goodies at three pounds per disk.

In some instances you're required to join a club before being allowed to make purchases from the supplier's catalogue (particularly with 8-bit PD), but for the rest it's a simple matter of sending off a stamped addressed envelope for the lists, making a selection, and Bob's your Auntie's live-in lover – good software at cheap prices!

• There's armfuls of great software waiting for you – at just a few quid per disk

THE GOODMAN PD library has been in existence for quite a while now. Mike Goodman – the proprietor – became interested in public domain software a couple of years ago when he decided to make collection of the best PD available for the Atari ST. Mike scoured the bulletin boards and catalogues of existing PD companies and soon had a large collection of the best programs from around the world.

At first, the whole operation was simply a hobby, but after being made unemployed, he joined the enterprise allowance scheme and launched himself into the world of full-time PD distribution. Alongside the free software, Mike sells blank disks and various other computer consumables and is enjoying a thriving – if not exactly lucrative – business.

Although the Goodman PD library receives many spontaneous contributions from programmers, the bulk of the collection comes from the Usenet bulletin board system in the United States. All software written in American universities is automatically deemed to be public domain, so some of the best (certainly the largest supply) public domain comes from America.

Goodman library disks cost £3 each and for that you receive more than 300K of code on every disk. The price is decided by the cost of duplication, blank disk prices, labels etc., and is the 'going rate' for a disk of Atari public domain software.

Although the utilities and games are very popular, the biggest sellers by far are the machine demo programs from Germany. The Atari ST has always had a more 'techie' image in Germany due in part to Atari selling the machine with one megabyte of RAM and a mono monitor as standard in that country. Consequently, there are some amazing utilities, serious and demo programs written by German programmers, and the 'union' demo from the Tex programming group is the best seller of all. The program begins with a corridor lined with doors on each side. You take control of a little guy whom you can direct to each of the doors. Behind each one there is a different sound or graphics demonstration, each truly breathtaking and each showing just what the ST is capable of.

A few samples

Software for machines such as the IBM-PC and its compatibles commands high prices, yet much of what's available in the public domain is comparable (in many cases much better than) to commercial offerings.

Any well-stocked PD library such as those listed in this article will be able to suggest some good PD word processors, spreadsheets, databases, graphics packages and so on for your machine.

For example, *1st Word* for the ST is GEM-based word processor great for beginners and advanced alike; *PC File Plus*is an incredibly easy to use database with a remarkably good report generator and lets you store free-form text; *UKM7* is a comms package that outperforms all its commercial rivals on the PCW; the best BASIC you can get for the Atari 8-bit is a PD product, *TurboBASIC*; the self-explanatory *Mandelbrot* for the Amiga; the list goes on...

Omega is a role playing adventure game which was originally programmed for use on mainframe machines, but has made a successful translation to the micro. At the beginning of the game, you find yourself with a randomly distributed collection of attributes in the city of Rampart which is also the home of the many guilds of sorcerers, mercenaries, paladins and various deities.

You can choose to join one or more these guilds – some require entry qualifications – or try to progress on your own which is not an easy task. Then it's off exploring hither and thither in search of fame and fortune. You'll encounter friends and foe along the way and the game has an excellent fight organiser which allows you to prepare a series of blows in advance in case you come up against one of the many who would like to instigate your demise.

When home computers were in their infancy, users were constantly searching for ways to justify their expensive silicon purchases. The phrase "serious user" was on everyone lips but no-one could decide on what constituted a serious use – with the exception of balancing the home budget. Although many commercial releases purported to do the job, it always seemed easier to use a pen and paper.

The *Home Budget Management System* changes all that. The program allows you to record your daily transactions and provides a complete analysis and report of your financial status. *HBMS* opens with a menu of possible choices such as initialising the system, opening a new month, logging purchases from cheques and credit cards, home expenses etc, or printing reports to the screen or printer.

Expenditure can be broken into several categories for reports or lumped together to provide an overall review of your current situation.

Screen displays are clear and informative. Data entry – although employing the double entry method – is a breeze and the whole program is geared towards ease of use. You can export the data produced by *HBMS* into other programs to produce graphs and charts. The whole thing fits into 256K of RAM, so you can keep all your favourite pop-ups.

The range of PD for the Atari ST – whilst not quite matching that of the PC – is nonetheless large and comprehensive. Much of the available software is imported from Europe, particularly Germany, and is of a high quality. There are many libraries around the UK catering for the ST or you can download programs from bulletin boards.

KidiPublisher is a cut-down desk top publishing program for children which is colourful and fun to use. The program opens with a screen resembling one page of a jotter and there's a menu bar of options such as save, draw and more pages. Kids can type a story straight on to the page then move to the drawing screen to illustrate their text. Illustrations are easy to achieve. There's a blank screen containing a pencil and with deft movements of the mouse the pencil is moved around and pictures easily drawn. Control of the pencil is a little tricky at first, but developing the co-ordination necessary for smooth movement is quick and simple. Children can save their work and load it again later.

If you're currently studying a GCSE in computer studies then you will almost certainly have encountered the CP/M operating system. This was the first operating system for 8-bit computers and in its heyday was immensely popular amongst home and business users alike. Consequently, CP/M is used as the basis for many computer courses in schools and colleges.

Wouldn't it be nice if you could run software intended for a CP/M system on your Atari ST? Well you can, with the Z80 CP/M emulator from Germany.

It comes on two disks which contain the emulator itself and various support and CP/M programs. Getting it up and running is a simple matter of booting the ST and clicking on the emulator program. Once it's running, your machine behaves exactly like an 8-bit running CP/M – but faster!

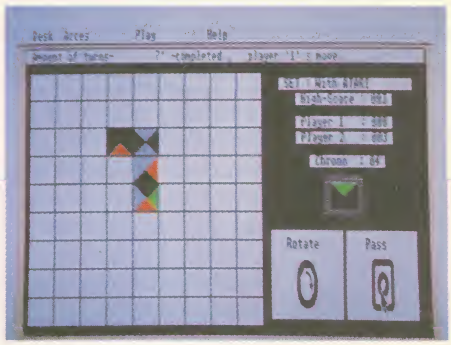
You can run almost all CP/M programs such as *WordStar*, various spreadsheet and database programs, games and utilities, and the emulator is an excellent way of becoming familiar with CP/M. The program is available from any PD supplier.

The Amiga has a large following in the USA and a correspondingly large pool of PD. Although there is some serious business-type software, most of the programs fall into the games/utilities and graphics categories, and in the latter the machine excels.

Air warrior is a flight simulation to rival anything available for £25 in your local software store. You control an F111 fighter. The game features fast, smoothly scrolling 3-D graphics and can even be played via a modem and telephone line, allowing you to engage friends (enemies) in aerial combat.

Or maybe you'd rather play a nice, quiet traditional board game? As well as the many chess and draughts programs there's an excellent rendition of that classic backgammon. You can play the computer or a friend, or have the computer play against itself. You can cheat a little too by making *what if?* moves and taking back pieces. The game features an excellent drawing of the board and smooth animation of the pieces. Available from any good PD library.

• Kidipublisher: Budding Maxwells start here...



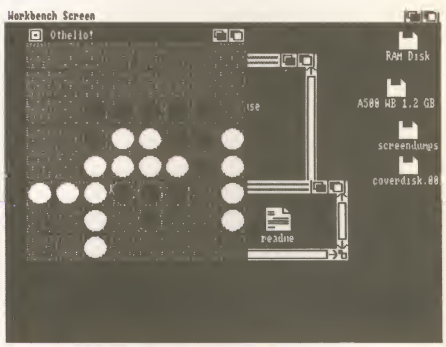
• A plethora of traditional board games await your delectation

GEORGE THOMPSON SERVICES is a company well known to Commodore Amiga owners in the UK. The company is responsible for a wide range of products, including RAM expansions, hard disks and external floppy drives and also one of the best public domain collections for the Amiga available in the UK.

Unfortunately, due to the widespread virus problem, many would-be PD users shy away from this type of software, but to combat this problem, George Thompson Services carries out thorough checks of all software before it's included in the library.

The disks sell for the standard price of £3 each, which again is based on duplication costs, blank disk prices and labels.

The collection includes simple and complex spreadsheets, a word processor (not for beginners), millions of K of clip art, utilities and games, but the biggest sellers are – not surprisingly – graphics programs. There is no DTP software available, but if you're already in possession of a commercial DTP program then there are lots and lots of fonts available to give your documents a professional appearance.



• Othello on the Amiga: PD software for this machine has a heavy bias towards games and utilities

Giving it all away

Why do programmers decide to give away programs they've written? Surely after expending much energy in writing a really useful utility or fun game, the programmer responsible would wish to pass it to a software house in order to have it widely distributed and to make a little money?

Bernie Rainer is a programmer who releases many of his programs into the public domain. After approaching several of the major software companies with examples of his work and receiving nothing but rejections (he was told the software was too specialised for a commercial market), he decided to upload one of his programs to a local bulletin board. He soon began to notice the program appearing on other BBSs – obviously, many people had found the program useful and had decided to distribute it to other boards.

After being encouraged by many messages of thanks, he now releases all of his programs into the public domain via the bulletin board network.

"I'm not too worried about the money", he said,

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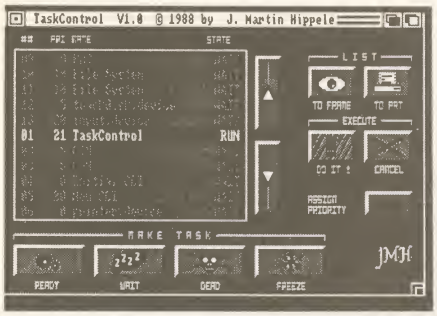

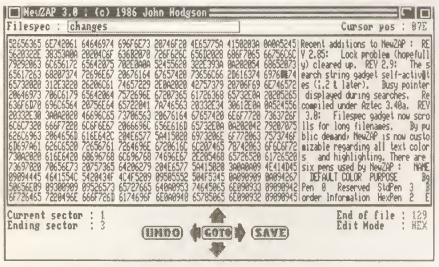

• Whether you wish to ruin your disks with a sector editor or automate crashes with a task control utility, the Amiga PD scene will oblige

"I just enjoy writing programs and if other people can use them, then I'm happy to give them away".

Although he's tried his hand at games, the majority of his programs are patches for a certain well-known network software package which provide it with more features.

Bernie's attitude is typical of those writing public domain programs – it's a hobby and they're happy for programs to be distributed if other people can use and enjoy it. ●

Where oh where?

OK, you're hooked. But where are you going to go to get the stuff? Take a look at the definitive directory to uncover a wealth of cheap software for your machine...

IBM-PC: There is more public domain and shareware available for this machine than any of the others put together. Anything and everything covering all tastes. Try:

- Public Domain Software Library, Winscombe House, Beacon Road, Crowborough, Sussex TN6 1UL. Tel: 0892 663298. One of the first PD libraries and one of the best.
- Seltec Computer Products LTD, Northumberland House, Staines Business Centre, Gresham Road, Staines, Middlesex TW18 2AP. They stock a large quantity of cheap (£2 per disk) shareware.

AMIGA: A growing army of suppliers covering the Amiga. Try:

- George Thompson Associates, Dippen, Brodick, Arran, Scotland KA27 8RN. Tel: 077082 234.
- Blitsoft, 6 Dorney Place, Bradwell Common, Milton Keynes, Bucks MK13 8EL.
- EMPDL, 54 Watnall Road, Hucknall, Notts NA15 7LE. Tel. 0602 630071
- Hasslefree PD, 168 Wolsey Way, Systen, Leicester LE7 8NT. Tel. 0533 694629
- Kingsway, 140 Rushdale Road, Sheffield 589QE. Tel. 0742 588429
- 17-bit Software, PO Box 188, Leeds LS1 6BS. Tel. 0532 420043

ST: With the mountain of incredible programs imported from Germany and all the good home-written stuff, the ST is well supported in the PD field. Try:

- Goodman PDL, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent ST3 1SW. Tel. 0782 335650
- Softville PD Service, 55 Highfield Avenue, Waterlooville, Hampshire PO7 7PY. Tel. 0705 266509

For the 8-bit machines, the best place to look are the user groups.

COMMODORE 64:

- Wicked PD, Tel: 0268 590571. To make use of the PD library, you are required to join a club. Membership charges are £3 per annum and for that you will receive a quarterly catalogue and newsletter and access to the C64 PD library. Disks are a very reasonable £2 each.

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MSX:

- MSX PD Service, 396 Park Lane, Maghull, Merseyside L31 1HQ.

PCW/CPC:

- CP/M User Group, 72 Mill Road, Hawley, Dartford, Kent DA2 7RZ.
- PD Software, Winscombe House, Beacon Road, Crowborough, West Sussex TN6 1UL. Tel. 08926 63298
- PD-SIG, 90 Braybourne Close, Uxbridge, Middlesex UB8 1UJ.

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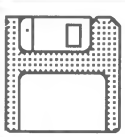

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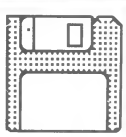

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PACMAN (G): Originally a coin-op launched by Namco in the early 80s, this game spawned a whole business in spin-off trinkets and even a television cartoon series as well as the home computer conversion.

PARADROID (G): Classic multi-directional overhead-view scrolling shoot-em-up game for the Commodore 64 written by programmer Andrew Brabrook, of *Uridium* and *Morpheus* fame.

• Pacmania on the Amiga: One of the latest incarnations of the coin-op classic

PAGE (T): A 1024-byte section of RAM memory within a computer. The memory is divided into pages in order to simplify the process of memory management, i.e. the efficient distribution of the available space to programs and data held in the machine.

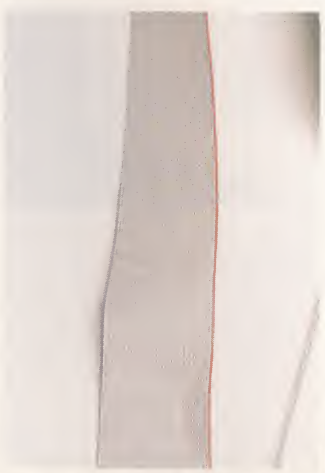
PAGEMAKER (DTP): A powerful desktop publishing package developed and marketed by the Aldus Corporation of America. The package is available for the IBM-PC and compatible range of machines and allows the set-up of complex pages of text and graphics.

PAL (T): Phase Alternation Line is the television transmission standard adopted by the UK and many other European countries.

PALACE (CO.): Opened for business in the early 80s with a lacklustre software rendition of the cult movie *Evil Dead*. The company is well known for its use of the pneumatic young woman Maria Whittaker in advertising for *Barbarian*.

PAPERBOY (G): Atari coin-op converted to many formats in which you adopt the role of an all-American paper boy on Main Street USA delivering the news and avoiding Sunday drivers and various other obstacles.

PARALLEL INTERFACE (T): Device which allows the transmission of data via several paths simultaneously. The most notable parallel interface is the Centronics standard for printer/computer connections.



• Centronics connector: the parallel interface standard

PARALLEL PROCESSING (T): Parallel processing is the ability of a computer to process several separate sets of data/information simultaneously. To achieve *true* parallel processing a computer is equipped with several independent CPUs all operating in unison on different data sets. However, the most common form of parallel processing is simulated and involves a single CPU assigning tiny portions of its available processing time to several data sets consecutively. The process happens so quickly that to an end user the machine appears to be performing all the processing simultaneously.

PARK PATROL (G): Cute 'n' cuddly title from Activision which pits you – as the park keeper – against litter bugs and errant swimmers.

PARITY (T): A process of adding a single bit to a byte of data which is to be transmitted across a telephone line, computer network, serial printer cable etc, in an attempt to check whether the data is correct once it is received. Two methods of parity exist – odd and even parity, in which a bit is added to make the byte odd or even as necessary. If a bit is lost the situation can be detected by checking the parity.

• Parity: Device used in telephone data transmission to check transfer success

PARSER (T): Program or collection of procedures within a program which accepts text, i.e. a stream of characters, then attempts to determine the syntactic structure of the character string. For example, many modern adventure games allow the player to type complex sentences such as "Take the large sword and disembowel the elf". In this instance, the parser would pick out the verb take, the adjective and noun large sword, the verb disembowel and the noun elf, consult lists of verbs, nouns etc to determine the validity of the words, then print on the screen a message appropriate to the course of action, such as "The elf deflects the sweep of your sword and with one deft flick of his sharp scimitar slits open your throat, what now?"

PARTITION (T): The division of available storage space on a hard disk which allows the device to support two more operating systems. For example, a hard drive connected to an ST could be partitioned to support both GEM and a secondary operating system such as Minix or PC-DOS via *PC-Ditto*.

PASCAL (L): Procedure-based structured language named after Blaise Pascal, the French mathematician and philosopher, originally designed to teach students computer programming techniques. Today the language is universally popular as a medium for writing everything from games to business software.

PASS (L): One cycle in the processing of source code by a compiler. During the pass, the compiler examines source code, assigns variable names to a symbol table and converts program instructions to machine commands.

PASSWORD (T): Word or phrase determined by a computer user which is used by them to access a computer network, bulletin board etc. The password ensures that no unauthorised user can make entry to the system using someone else's name.

PASTFINDER (G): Vertically scrolling surreal shoot-em-up for the Commodore 64 from Activision.

PATCH (L): Fragment of code which is inserted into an existing program in order to change or add to it its functions. For example, many users of *Sidekick* decided that it might be a good idea to enable the program to 'pop-up' twice so that two *Sidekick* modules could be used without having to end the utility then enable it again. To achieve this, a patch was circulated via bulletin boards and a well-known magazine which modified the program and allowed it to be popped up over itself.

PAWN (G): Innovative adventure game with attractive location graphics and excellent parsing which spawned sequels such as *Guild of Thieves*, *Corruption* and *Fish*.

• The Pawn: Classic adventure from Magnetic Scrolls

PC (C): Personal Computer, specifically IBM's personal computer, which made its debut in 1983 and has since gone on to become the world's most popular small computer, spawning a range of clones and compatibles which emulate the machine.

PCB (T): Printed Circuit Board. A medium for electronic components joined together via solder tracks running across the surface of the board. ➤

• PCB: Printed circuit board

Part 12 of the definitive Express guide to computing

PC-DOS (OS): Operating system based on MS-DOS, which is used by IBM's personal computer.

PEEK (L): BASIC language command which allows the programmer to examine and extract the contents of a single RAM memory location. One such use might be to peek at the computer's internal clock in the memory, enabling timings to be made in a program.
Contrast with ***poke***.

PERIPHERAL (T): Any device which connects to a computer enabling it to perform an extra function is known as a peripheral. Disk drives, printers and modems are all examples of peripherals, as are joysticks, mice and light pens.

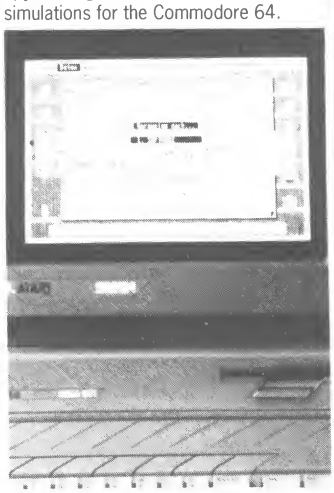
PHONEMES (T): Phonetic sounds which are joined together to form words. Speech synthesisers make use of phonemes (also known as allophones) in order to construct intelligible speech.

PILOT (L): Third generation high-level language which is a specialist tool used in the creation of computer-assisted learning programs. PILOT stands for Programmed Inquiry, Learning Or Teaching. Here is a sample of PILOT:

```
PR: U
T: What is the UK's highest mountain?
A:
M: Ben Nevis
TY: Well done! You are correct.
TN: The correct answer is Ben Nevis.
```

PIRACY (GG): Applicable to all software but mainly experienced with games, piracy is the illegal copying and distribution of a program. The scale of piracy ranges from schoolkids swapping the latest games to large copying plants based in several European countries where the licensing laws are less rigid than the UK, distributing mountains of the stuff via market stalls etc.

PITSTOP 2 (G): Released in 1985 by Epyx, this game is one of the best racing simulations for the Commodore 64.



• Pixel: Thousands of these "picture elements" go to make up a screen image

PIXEL (T): Bastardised version of the phrase "picture element". The pixel is one addressable dot of a computer display. Early home machines such as the ZX81 offered a display made of 64 X 64 pixels. The slightly improved Atari ST can furnish a screen resolution of 640 X 400 pixels.

PL/1 (L): High-level language popular amongst corporate business users as a replacement for COBOL. The language is used extensively in the data processing.

PLOTTER (T): Printing device used to reproduce complex diagrams and 'blue prints' for architects and designers. The plotter has a drum which contains six (give or take one or two) high quality pens which are lowered and raised in order to make contact with the paper, thus producing the drawing. One of the most famous plotters is the little MCP40, a tiny device which accepted rolls of four-inch wide paper and used four coloured pens to produce accurate and reasonably high quality drawings. The machine was badged by many notable computer companies such as Atari, Oric, Tandy etc.

POCKET COMPUTER (T): Beginning with the early programmable calculators (not strictly computers) the pocket computer has been refined and developed. Today's machines can run complex programs, store names, addresses, telephone numbers and shopping lists, provide the time in every major city across the world and do translations into various languages. None yet run have disk drives and look like glorified calculators, but Atari have announced a Pocket PC which will run on smart cards and should appear in 1989/1990. See also ***portable computer***.

POKE (L): BASIC statement which allows a programmer to insert a value into one particular memory location. Contrast with ***peek***.

• Portable: Computer which can be used on the move

PORTABLE (C): Generic word used to describe computers which can be carried around and used on trains, buses, in taxi cabs etc. The machine is usually PC-compatible, has a couple of disk drives, or a hard drive and an LCD screen. See *Express* 34 for the definitive round-up of portable machines.

PRESTEL (T): One of the first and probably the largest of the bulletin board services in the UK. Prestel provides an enormous quantity of information from its own and outside sources. Companies can set up open and closed conferences, and user groups, provide and charge for information and pass electronic mail around the country and the world.

PRINTER (T): Device used to produce 'hard copy', i.e. printed paper, from word processors, spread sheets, screen dumps and other computer sources. The printer comes in many guises such as daisy wheel, dot matrix, ink jet etc. See also ***daisy wheel***, ***dot matrix***, ***ink jet***, ***laser***, ***plotter***.

PROGRAM (L): Collection of commands used to instruct a computer. The program can be constructed using machine code, assembly language or one of the many high level languages such as Pascal, Cobol, C, Fortran etc in conjunction with a compiler.

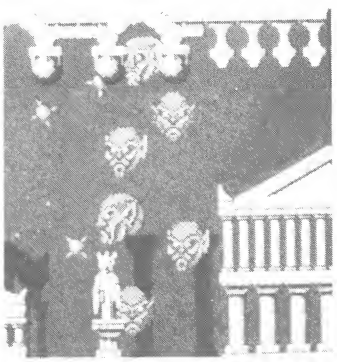
PROLOG (L): High level language used extensively in the field of artificial intelligence.Prolog is designed to manipulate knowledge rather than numbers. A version of the language known as MicroProlog exists for use with home computers.

PROM (T): Programmable Read Only Memory. ROM chip which allows the user to store his/her own program before being used in a computer.

PSION (CO.): Famous now for its "Organiser" handheld computers, the company initially produced Spectrum software and then official QL bundled software, which it later released in PC format.

• Psion: Erstwhile software producers now famous for its "Organisers"

PSYGNOSIS (CO.): Formed by members of the once thriving Imagine, the company has concentrated on 16-bit titles such as *Barbarian*, *Obliterator* and *Menace*.



• Psygnosis: Software house behind the excellent Menace, amongst others

PUBLIC DOMAIN (T): Public Domain programs may be copied and distributed at no charge. PD libraries exist which produce catalogues and will copy items onto your disks for a few pounds' copying charge. PD software should not produce a profit – in theory. 16-bit PD software is particularly good.

The Public Domain is a hypothetical 'environment' in which programmers place programs they've written in order that they may be distributed freely amongst interested users. The process involves the programmer writing a piece of software then relinquishing all copyrights to the software, and this enables it to be copied and given to anyone who wants one.

Key: C - computer Co - company DB - database DTP - desktop publishing G - game GG - game genre Gr - graphics Int - integrated software L - languages P - personalities SS - spreadsheets T - tech spec WP - word processor

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DREAM ON...

The Dreamscape series of club nights out are designed to mix computer visuals with dancefloor sounds in a swirl of mystery and imagination. Up in town for the evening, Andy Storer donned his laser shades and dreamt of going to sleep...

The last Dreamscape gig was glowingly reviewed by the *Evening Standard* as taking nightclubbing into the future with high-tech video games, whilst *I-D* magazine, arguably the style bible of the eighties, saw Dreamscape as a pointer to the "techno-visual" nightclub of the nineties. Fair praise? Or a heap of hype to inject some hope into a fading London club scene?

Interactive nightclub entertainment is the promise on the ticket. *"Remember, Dreamscape is about innovation. A fusion of music, dance, art, style, video games, people and statement. Dreamscape – The Journey is the Reward"*.

And a ten pound note the price. London's Town and Country club in Kentish Town is the venue for something approaching the sort of multi-media extravaganzas that have blessed Amsterdam's club scene for a decade. But whereas the substance of Dutch dreams is the "grey imports" of Morocco, Lebanon and Turkey, North London's nightlife is strictly lager and laughter.

So Dreamscape delivers video games, freestyle skateboarders, a sit-in *Thunderblade* cab and all-night surroundasound Acid. But it'll take more than 132 b.p.m. mix-downs and 5 Sega 8-bit decks to pave the way for truly interactive video entertainment. *Afterburner*, *Operation Wolf*, *Thunderblade*... come on guys... weren't they last year? And as for endless Acid...

Of course, the organisers could plead poverty. It takes more than a little money to have banks of monitors interspersed with large screen feeds of computer action. But since Sega saw fit to donate its gear and the handful of skateboarders probably did it for the thrill of cracking their joints, one could wonder where the estimated £2,000 gate takings actually went. Certainly not on the couple of artists painting acid wall covers or the troupe of disco dancers twirling around the stage. Probably to the club's management.

Once it was obvious nothing much was happening, the DJs' mixes took centre stage and the evening decided it had been everywhere, seen it all before and was simply intent on surviving.

On this showing, Dreamscape's about innovation: sure, the innovation of 1987. So what's needed for the real nineties' nightimes?

Maybe large screen hook-ups to 16/32-bit games machines with joystick jockeys at the helm. Or how about live cruises through the uncharted waters of international bulletin boards? Or maybe some abstract readouts of satellite data beamed in from Europe? Or a go on a photon paint packages for us would-be Warhols to paint the town red in 4,000 colours.

And that'd be just for starters. Maybe then a tenner would be well worth it. ●

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Show blow

Edmund Blake's comments on the recent Atari show held at the Alexandra Palace between the 23rd and 25th of June were largely correct. The excitement of past shows has definitely disappeared... few major software houses and hardware manufacturers bother to attend any more. Even Atari called it a day and decided not to have a stand at the latest show. The stalls are manned mostly by box-shifters interested only in making a quick buck.

Like Ed, I hope the forthcoming Shopper Show (also to be held at Ally Pally) will revive some of the enthusiasm of old.

Sorry, Ed, but you were very wrong when you said that the ParSec board and Rombo's Vidi where the only new things of interest to ST owners.

Yes, the ParSec board was the most exciting thing at the show if you've got over a £1,000 spare. Good though it is, Vidi ST has been around for over a year. There were many interesting new products if you looked.

Very briefly here are a selection of items launched at the show: *Protext V4.21* (Arnor 0733 68909); *That's Fun Face* and *That's Write* (Cavendish 01-323 4761); *Blitz, Mouse Music* and numerous Triangle floppy drives and hard drives (Power Computing 0234 273000); *Personal Tax Planner* (Digita 0395 270273).

• Say goodbye to Atari shows

2-Bit Systems showed a prototype of 812, an 8-bit sound sampler with 12-bit playback resolution. Also in the works from 2-Bit are a couple of other samplers; one offers 12-bit sampling with 14-bit playback while the other offers stereo 16-bit sampling and playback. The 16-bit sampler is likely to cost around £600 – very reasonable for true CD quality sampling. More from 2-Bit on 0582 457348.

Another product that didn't make it in time for the show, but generated a huge amount of interest was Multigen from Digita. Multigen will fit to a number of computers including the ST and let the user mix RGB output from the computer with video signals from a TV or video recorder. At last, a genlock for the ST! Software will have to be found from other sources as Digita has no intention of writing any. DTV Systems, specialists in ST and Amiga desktop video, on 0343 44581 will be able to help you with software.

The word is

Arnor released V4.21 of its word processor, *Protext*, at the show. The new version contains many minor fixes and enhancements. The major upgrade is still to come later in the year. What that will consist of is anyone's guess.

V4.21 has changed the way printer drivers are handled. SETPRINT has been knocked on the head. Drivers can simply be loaded into *Protext*, modified to taste and saved again. All SRC files have disappeared only to be replaced by PPD files.

The CONVERT program has also been enhanced. Rather than having a handful of CVT files for converting text files from one format to another, a single program lets you do all the changing in situ.

A public domain reset-proof RAMdisk has also been included. Not only do your files remain intact when a reset occurs, but all files saved to the RAMdisk are crunched. This means you can squeeze roughly twice as much data into Arnor's RAMdisk than in traditional RAMdisks.

Other additions include key sequences for adding the time and date into a document, a completely revamped manual with decent index, a clock on the status bar, the cursor moves only when the mouse is clicked rather than following the pointer when it's moved round the screen, the Desk menu doesn't reappear after quitting from it and an exec file lets you configure the keyboard for accessing Greek characters.

Protext V4.21 remains at £99.95. Upgrading from V3.5 costs £30, moving up from V3.6 sets you back £20 and updating from versions 4.0 and above costs £15. Arnor is at **611 Lincoln Rd, Peterborough, 42PE1 3HA**

Hit that crazy key

If you own a hard drive you probably have subdirectories within subdirectories within subdirectories. Getting to a particular file can take an unnatural amount of mouse movement and clicking. With *HotWire* you can chuck your mouse out of the window. *HotWire* is the second fantastically useful utility to come from ISM in just two weeks.

HotWire lets you assign "hot keys" to up to 54 programs. Essentially, you can run anyone of these programs instantly simply by pressing one of the hot keys. Brilliant! If you forget which keys have been assigned to particular programs you can always hit a combination that will display a window with all 54 keys and the programs assigned to them.

ISM can be contacted at **Grove House, Ventnor RD, Apse Heath, Isle of Wight** (0983 867488).

Adrion McHerriot

Protext fix

If you picked up a copy of Protext at the show you may be having difficulties getting to the Desk menu and selecting accessories. Normally this is achieved by pressing the right mouse button. In the rush to get the update ready for the show somebody forgot to update the CONFIG file.

Here's what to do to get the right mouse button working as it should:

- ***Type CONFIG at Protext's command mode prompt or double click on the CONFIG.PRG file from the Desktop.***
- ***Press M, K and K again to redefine the keyboard.***
- ***Hit the right mouse button at the "press any key to redefine" prompt.***
- ***Press E to edit, press return, type 305, press return, hit Esc four times and finally press S to save the new configuration file.***

After that lot you should be able to get at those accessories.

AMIGA BLIT

USA Today

Take one look at the Amiga scene of today and it seems almost impossible to believe that only three years ago, people doubted the very survival of the Amiga. Today's Amiga scene is one of the most active of any machine, regardless of price or performance.

● **Centaur Software** has brought out a rather unusual software package that is being advertised as the "foremost educational utility for the Amiga". The product in question is *World Atlas*, and it claims to offer speedy access to detailed information on over 150 countries of the world. The program isn't text based like similar programs on the PC, but instead employs colourful high resolution maps à la *Readers Digest Atlas of the World*.

● **Manx** certainly seemed to have been shaken by the recent release of version 5 of Lattice's C compiler. Several major distributors in both the States and in Europe have dropped Manx's *Aztec C* in favour of Lattice's latest release. To combat the threat, Aztec has just announced the imminent release of an upgrade for their development system, *Aztec C Express*. Unfortunately, no details of this new release are yet available.

● **Digital Creations** has released some rather tasty pieces of A2000 video hardware which are sure to keep the Amiga in the number one slot where Desktop Video is concerned.

VMachine is a powerful Time Base corrector with dissolve, overlay and keying systems, as well as a programmable real time digital video effects system. The device boasts screen resolutions of upto 1,024 by 512 pixels, with 16 million colours. Video effects supported include chroma key, overlays, shrinks, wraps, tumbles and many others.

To complement the VMachine hardware, Digital Creations is also releasing a whole range of additional software and hardware add-ons such as a paint package called *Living Colour Paint* which supports all screen modes offered by VMachine and the Amiga.

For genlock enthusiasts, Digital Creations has also announced the release of the follow-up to its popular SuperGen Genlock, SuperGen 2000S. SuperGen 2000S is compatible with the new "Super VHS" standard.

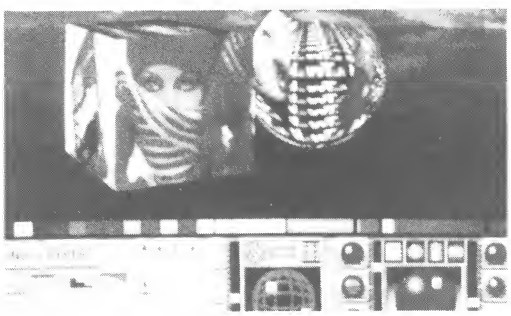
● **Eagle Tree Software** has released a new Amiga chess game. Eagle Tree's offering allows you to play different variations of the game from all around the world.

You could, for example, have a quick game of Medieval chess, then perhaps move on to a spot of Courier or Decimal chess. If you're felling adventurous, you could even try your hand at either Burmese, Los Alamos or even Byzantine chess (played on a circular board) or Chinese chess (which has a river running across the centre of the board!).

● Frustrated musicians everywhere will be pleased to hear of a new product from **Impulse Incorporated** which claims to allow even the most tone deaf among us to compose beautiful music. With *Harmony*, all you have to do is "hum" into a microphone and *Harmony* will turn your mumblings into Sonix compatible SMUS music files. Weird or what!

● **NewTek**, purveyor of digitisers and unreleased video hardware (where's the Video Toaster?!), has upgraded its acclaimed HAM paint program, *DigiPaint. DigiPaint 3*'s (what happened to *DigiPaint 2*?) user interface has been revamped beyond all recognition under the control of James Sachs, one of the most famous Amiga artists (who also did the graphics for games such as *Defender of the Crown* and the vastly underrated *Ports Of Call*).

Additional features include support for super bitmaps of up to 1,024 by 1024 pixels, flexible text rendering, full overscan support, brush rotation, complex resolution changing tools and even compatibility with X Specs 3D (3-dimensional HAM graphics?).



• **DigiPaint 3: Set to cause a stir in the Amiga paint package stakes.**

Turbo Charging BASIC

When using *AmigaBASIC*, you'll probably have already noticed how slow the screen update can be. The reason for this is that the *AmigaBASIC* window uses the Intuition "SIMPLE_REFRESH" technique, instead of the faster "SMART_REFRESH". The result of this is that every time a window obscures *AmigaBASIC* and is then removed, *AmigaBASIC* has to manually redraw the entire window.

The *AmigaBASIC* program below, patches the *AmigaBASIC* window definition so that instead of using "SIMPLE_REFRESH", "SMART_REFRESH" is used.

```
DEFLNG a-Z
CHDIR "Extras:BasicDemos"
LIBRARY "dos.library"
DECLARE FUNCTION xOpen() LIBRARY

f=xOpen(SADD("Extras:AmigaBASIC"+CHR$
(0)),1005)
  CALL Seek(f,22289,0)
  CALL xWrite(f,SADD(CHR$(0)),1)
  CALL xClose(f)
```

The only disadvantage of using smart refresh is that a little more memory is used but the increasing in operation speed will make this loss more than worth it! Thanks to Charles Bernasconi for the tip.

Jason Holborn

Message Port

If you have any views on any issues raised within AmigaBLIT, or in fact the Amiga scene in general, then why not put them down on paper and send them in! Similarly, if you have any great tips, cheats or tricks for the latest Amiga software, then I'd love to hear from you. Send all your letters to: JASON HOLBORN, AMIGABLIT, 4 QUEEN STREET, BATH BA1 1EJ.

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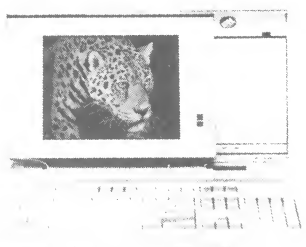
PC UPDATE

OS/2 Update

IBM continues to develop OS/2, its flagship PC operating system. The big advantage as far as the company is concerned is that it gives it a consistent operating environment from PCs right through to its top mainframes. This is particularly important for its corporate strategy, when trying to sell a complete computing solution to a large company or corporation.

Whether it catches on at the lower end of the market largely depends on the cost memory chips. OS/2 can handle up to 16Mb of main memory, rather than the 1Mb of PC/MS-DOS, and the extra complexity of multi-tasking means that the operating system itself takes up to 2Mb for its own use. Add to this an overhead of 2Mb for the graphical user interface, *Presentation Manager* (leaving aside the Extended Edition which includes database and networking software and is a LOT bigger), and you end up with 4Mb before you start running applications.

If your PS/2 machine costs you £5,000 or more, and comes with over 4Mb, this is probably not going to worry you. At the lower end of the market, though, the small business and home users are going to find it hard to swap. And unless the price of RAM does drop significantly, it's hard to see OS/2 capturing this part of the market in the short term.



• OS/2: Great for machines like IBM's PS/2 P70, but what about PCs at the lower end of the market, with 4Mb or less of RAM?

Nonetheless, IBM is continuing to push OS/2 and their high-ranking Model 70 and Model 80 range of PCs hard, as the corporate buyers are where the big bucks are. And their latest release is an add-on 80486 daughter board which can out perform a 33MHz 80386 by a factor of two. The board plugs into the planar – as IBM insists on referring to the motherboard – and costs a further £3,000. Still, if you need that kind of power, I guess you have that kind of money, or an Archmedes (sshh! wash your mouth out).

Maxit Board

Last week I mentioned an expansion card for use on a PC which could 'fill in' a 64K free memory slot in the PC's memory map, above the 640K barrier. I've since been sent another card, Maxit, which offers 256K instead. This memory can be used in a number of different ways, as it's divided into five separate slots, labelled A to E. A, B and C are 64K blocks, while D and E are 32K each.

The memory can be used in a number of ways, depending on the memory you already have in your PC and on your display adapter. For a start, if you have only 512K of main memory, you can use half of Maxit to fill up to 640K. You can also use a combination of the remaining blocks above 640K, filling in the 'holes' that are available on almost any PC between 640K and 1Mb. You can load TSR programs (like *SideKick* or *TopCopy Plus*) into this area and run them from there, leaving your main memory free for major applications.

As a third option, you can allocate some or all of the Maxit memory to LIM standard expanded memory, which can be used by programs such as *Lotus 1-2-3* for extra spreadsheet room. The Maxit card costs £259 inc VAT from the Ctrl Alt Deli on (0908) 662759.

S.M. flees the country

I received a press release from those jolly people at Shareware Marketing the other day. As you probably know they've recently moved from Kent to Devon – many would say a very wise move. However, the cause of Devonian separatism must have gone to Steve Lee's head, if his latest press release is anything to go by.

The release details how the Association of Shareware Professionals has accepted Shareware Marketing as an Associate Vendor Member. The Association monitors standards of service among vendors and can refuse to supply Shareware to those who don't come up to scratch. According to Steve, this is the first time a vendor "outside of the United Kingdom" has been bestowed with such an honour.

I'm afraid for all practical purposes Devon is still considered part of the UK, Steve. For "Kingdom" read "States".

BASIC 2 in one

Those who use BASIC 2 on a hard disk machine (a language that is much underrated) may like to know that you don't need to pass through the GEM Desktop in order to reach the language. You can type GEM BASIC2 from the C-prompt and pass straight through GEM into the language.

Not only that, he says smugly, but you can tack on the name of a BASIC 2 program as well, and include a path if you like. For example:

```
GEM BASIC2 A:\BASIC2\WIZIWANG.BAS
```

would load GEM, load BASIC2 and load WIZIWANG.BAS out of the BASIC2 sub-directory of your A drive floppy.

I know this works with the set of batch files that GEM puts on your hard disk when you install it from a Digital Research GEM application. I haven't tested it on an Amstrad 1512 or 1640, so don't know whether it holds true on those machines as well.

Simon Williams

FRED wins through

There are few home and small business computer users who can also claim to be competent typists and shortcuts are therefore always welcome. It's probably for this reason that FRED has come to the fore in so many circles. You may have noticed his name used in a wide variety of manuals and on-disk documentation for filenames, sample database entries and the like. There's even a programming language, part of Ashton-Tate's FrameWork, named after him.

The reason of course, is that it's quicker and easier to type FRED with a single finger than virtually any other name (unless you're called Qwerty). Moving anti-clockwise from the [F] key, the name just flows out.

More on the Magnum

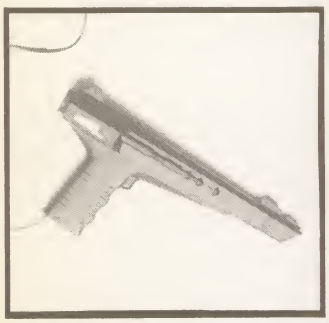
Last week, you'll remember, I'd just got my sweaty pinkies on the Virgin/Mastertronic Magnum lightgun for the CPC, which is due for release within the fortnight.

Now I've had it for a whole week I'm a little more certain of what I think: I used to be undecided (all together), *but now I'm not so sure.*

First off it must be said that the £34.95 price tag is on the stiff side – particularly since that's a fiver more than the Spectrum (boo) version.

Secondly the half-dozen games that come bundled with it are for the most part what might be called, to use the technical benchmark term, "a load of old cobblers." There's *Missile Ground Zero*, *Rookie*, *Solar Invasion*, and *Robot Attack*, none of which have been previously released (to the best of my knowledge – get out clause no. 37).

Then there's a real blast from the past in the unwelcome form of *Bullseye*, based on the smashing marvellous super-duper isn't that terrific (answer: no) darts/quiz prog, the computer version of which was generally frowned upon when it first appeared shortly after the First World War. So far, to sum up, so what?



• The Magnum: could try harder

Finally, and something to get excited about at last, there is *Operation Wolf*, Ocean's mega-hit arcade conversion. Many of you will know this game and should therefore see very clearly why it is bound to be the focus of all attention.

For a start it's a brilliant conversion, though I have heard complaints that it's too difficult (cue for a dozen letters boasting that their authors had finished it before they'd even opened the box); and furthermore it suits the Magnum perfectly.

It's a shooting game that was never entirely suited to joystick operation, since by the time you'd moved the gunsights you'd usually been hit by four bullets, two grenades and a dagger.

Could try harder

The Magnum, then, is not what it might be. What is crucial is how many future games are released in a lightgun-playable form. In fact there's no technical reason why most games shouldn't appear with the lightgun driver program included on the same tape/disk as the joystick/keyboard version. This, however, won't happen, since software houses will have to pay a royalty to Trojan Developments which devised and manufactures the device. I understand that major software companies are planning Magnum-compatible games, but in the absence of further information I am obliged to remain stubbornly sceptical.

The reason to be cynical, of course, is the involvement of Amstrad. As I understand it (but don't quote me – get out clause 57b) Amstrad was not responsible for developing the Magnum and is leaving the marketing of it to Virgin/Mastertronic.

All that leaves, I guess, is the badge on the gun and the power of veto. Amstrad's commitment to the CPC has been in question for two years now, and we'd be foolish to expect it suddenly to experience a miraculous conversion. The Magnum is potentially the best CPC news CPC games players have had in a very long time: whether that potential is realised remains in the balance.

If I were you I'd get your hands on the August issue of *Amstrad Action*, available next Thursday (July 10th). There's a full two page review of the Magnum, and the chance to win one of ten bundles, each worth £35.

Vindicators never die – they just get poked

Here's a poke for the tape version to weaken your opponents and give your eternal life in the Tengen/Domark colourful arcade conversion *Vindicators*, once more courtesy of Mapperley man **Phil 'Hacker' Howard**.

To enter it, simply rewind the game tape to the beginning; type in the poke listing and then type **RUN** and press the Enter key. (Don't use the key marked CTRL or Control, or the poke won't work.)

Press the Play key on the cassette deck, then any key on the main keyboard – the spacebar's as good as any. The tape will now play through as normal.

```
1 ' VINDICATORS
2 ' by Phil Howard, NCE 35, June '89
3 ' WEAKER OPPONENTS
4 '
5 ' INFINITE LIVES
6 '
10 DATA 21,23,41,36,c3,23
20 DATA 36,0e,23,36,be,c3
30 DATA 00,40,3e,3e,32,72
40 DATA 2D,3E,C9,32,58,06
50 DATA C3,00,04
60 MEMORY &3000:Y=0
70 FOR X=&BE00 TO &BE1A
80 READ A$:A=VAL("&"+A$)
90 POKE X,A:Y=Y+A:NEXT
100 IF Y<>&7AA THEN 130
110 LOAD"VIND"
120 CALL &BE00
130 PRINT"DATA ERROR!"
```

Steve Carey

Pandora: the winners

Regular readers of this column (if you're not, try subscribing – or Branflakes) will be bursting with curiosity to know who's won the CPC Centre Pandora competition.

We had five copies of this new £30 machine-code program generator to give away if you could just tell us who Pandora was.

The five lucky winners are: Paul Graves of Ash, near Canterbury; C. Baker of Southampton; S.J. Lee of Huntingdon; John Brown of Wittering (no comment), Peterborough; and D. Hollett of Padgate, Warrington.

All other entrants – including the mysterious multiple entry from disparate members of the Surry clan – receive a £5 voucher off Pandora.

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SPEX

Draw me a diagram

At last, after years of searching, that near-legendary object has been found. Yes, believe it or not, I now have in my possession a Spectrum circuit diagram. Following numerous frantic pleas, and no doubt spurred on by the promise of free software, they've been arriving by the sackful. Many thanks to the following public-spirited individuals for writing: **Keiran Casey**, **David Smith**, **Mark Painter** and **Dave Rogers**.

But the first and probably most generous person, and therefore the lucky one who gets the software is (improvise a drum roll everybody)... James "Jim'll Fix It" Abram! His diagrams arrived about a day after *Express* 32 came out along with the promise that for a nominal cost covering charge he will willingly send photocopies to any interested parites. James got the diagrams from the Spectrum repair manual which he already wrote to me about and I plugged in a past column. Details concerning that from CPC on 0772 555034, and for further info on the circuit diagram photocopies, send SAEs to James at **44 Virginia Road, Albrighton, Wolverhampton, W Midlands WV7 3NP**. (Just give him a while to get bored of all his new software though.)

Also welcomed by the same man are ideas on how he might construct a new power pack for his plus 3. Another source of the aforementioned rare articles is apparently a magazine called "Television" which should be in the local library and includes a series of features on servicing the Speccy. So nobody's got an excuse to be circuit diagramless. One last thing, don't send any more please!

More enigmatic info

You may remember me plugging the first edition of *Enigma* – a 128 users tape fanzine, like I had shares in it a while ago. Well the second issue just hit the streets with a resounding Thud! (journalistic cliche no 396) and delivers more fun for beleaguered 128, +2 and +3 owners. The contents include some great music from Ocean to fully exercise the 128's sound chip, sound sampling routine, a demo from Players, unerase utility for the +D disk drive plus a word count for *Tasword 2*.

That's as well as the more standard features like reviews, hacks, previews and the like. Definitely recommended to people who want to enjoy the benefits having a larger memory can bring. *Enigma* costs £1.99 an issue or £1.50 if you supply your own cassette (C60 size) and the address for orders is **Hamish Rust, 15 Westfield Road, Inverurie, Aberdeenshire, AB5 9YR**.

Robin Alway

More tips!

The usually bountiful supply of tips has dried up a bit of late, so seeing as the promise of some free software attracted every circuit diagram in the western world, I've dreamed up another little scheme to get you writing in. For a limited period only, really good, original hacks, hints and cheats for up to date releases will get one whole game free! How can you resist? Send the stuff in to SPEX, New Computer Express, 4 Queen Street, Bath, BA1 1EJ.

Trendy loading screens

The pair of listings I treated you with in recent columns seemed to go down pretty well with just about everybody, and because SPEX always tries to make your day and leave you with feelings of warmth and happiness, here's another type-in for you to feverishly bash out. It's a compact and bijou little number form the same person who brought you the famed scrolling message routine of issue 26, the talented Mark Bailey, and emulates the trendy loading screens you might have seen in games like Robocop. I found it a little difficult to get up and running so your maximum concentration is required at all times...

```
10 CLEAR 29999:FOR A=65200 TO 65357:READ M:POKE A,M:NEXT A:STOP
20 DATA 48,117,1,17,0,64,42,176,254,62,8,245,62,4,6,32,245
30 DATA 58,178,254,167,32,9,235,54,0,35,16,251,235,24,5,1,32
40 DATA 0,237,176,6,30,255,16,253,241,61,167,40,15,36,36,20
50 DATA 20,14,32,167,237,66,235,237,66,235,24,208,241,61,167
60 DATA 40,10,245,6,6,124,144,103,122,144,87,24,190,62,88
70 DATA 186,200,61,186,32,9,17,0,65,42,176,254,36,24,170,36
80 DATA 20,24,166,42,176,254,1,0,24,9,17,0,88,6,3,237,176
90 DATA 201,33,0,88,17,1,88,54,56,1,255,2,237,176,201,33,0
100 DATA 64,237,91,176,254,1,0,27,237,176,201,42,176,254,17
110 DATA 0,64,1,0,27,237,176,201,127,77,66,56,57
120 SAVE "LINE":STOP
130 SAVE "LINE" CODE 65200,158:STOP
140 LETC=30000:LETA=INT (C/256):LET B=C-A*256:POKE 65200,B:POKE 65201,A
```

Once the smell of burning rubber and plastic has diminished, save the whole thing by typing RUN 120. Now the program needs something to work on, so either pinch the loading screen from the game of your choosing or design one. Load it into the program with LOAD "Name of the screen" CODE address (address is the location in the memory where you want the screen to end up. Locations up to 30000 have been cleared for use). Next come the various fiddly bits to make the screen appear/disappear as you want it to. For starters, there's a fade routine:

POKE 65202,1 or 0 (1 – Fade on screen, 0 – Fade off)
POKE 65200, screen address. Alternatively, it's possible to change the value of C in 140 to the starting address of your screen.
POKE 65238,1-255 for speed of fade. (0 – slowest, 1 – fastest, 2 – second fastest etc) RANDOMIZE USR 65203 runs it.

There is also a colour on and off routine:

RANDOMIZE USR 65299 shows the screen's main colours without the actual picture.
RANDOMIZE USR 65314 resets the screen's colour to a certain attribute.

Finally, two commands to put the screen into memory or vice versa:

Copy screen to memory: RANDOMIZE USR 65328
Copy memory to screen: RANDOMIZE USR 65341
Typing RUN 130 will save the machine code, according to Mark. My thanks are on loan to Mark Bailey yet again, and you'd like to experience similar ego inflation, send in your code.

SECTOR 64 SECTOR

Two worlds

The music industry is suffering from the same thing as the computer industry – piracy. In the case of music, it's the illegal swapping of tracks.

But even though we moan about these people who get games and fiddle with the code then swap it all over the world, these are usually the game-makers of the future.

The same thing is happening in the music industry, where the hacker is replaced by the DJ who gets records and mixes them with others. He then proudly swaps his piece of work with other DJs all over the world. These mixes are just the same as – or even better than – commercial mixes, but as these people can't afford the rights to do it legally, they just end up in DJ-only record collections.

Even though people think this is a bad thing, you must stop and think that these people are going to be the DJs and mixers of the future, just like these hackers.

What can be done?

Rainbow Arts is back

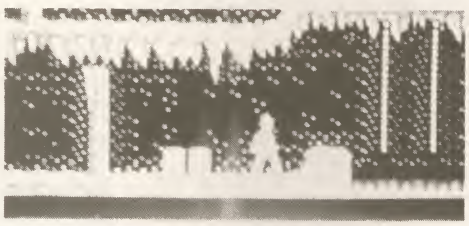
This time it's with *Danger Freak* – so what's the script?

Stuntmen – unsung heroes of countless epic cinema classics, daredevils who know no equal – take on the role of danger freak, and you too can try those daring stunts you've seen performed so effortlessly on the big screen. Screaming into oblivion down Anarchy Road, on the meanest machine on two wheels, scrambling desperately over a ladder suspended from a helicopter, leaping onto a moving car and flying over rooftops in a death-defying Bondmobile.

Please note that these stunts are done by professionals who know what they're doing. Do not copy them in any way – things could prove fatal (hee hee). No, we don't think you're that stupid really. Honest.

Look out!

Well the new film *Indiana Jones and the Last Crusade* looks to be a monster smash in the UK on its release, but will the computer game be just as exciting? You'll have to find out for yourself when it comes out on the 64 from US Gold in late July.



• Indiana Jones and the Last Crusade: out late July on the 64

Wow!

It's amazing! We found out that the night club we regularly attend uses Commodore 64s to display the freaky text on the monitors. You never know how far your machine can go!

People could really put the 64 to good use if they wanted to make a great acid house video – as we found out for ourselves, it can be a wicked tool for video making.

We put together a demo which had a big, solid circle coming in and out of the TV, while having the screen and borders flashing very fast. On top of that we flickered between two screens to have the large white strobing ball look like it was behind a full-screen acid logo flying across the screen at a very fast rate. And to add more excitement to it, we had a small smiley face fly up and around the screen before leaving the display. The finished result could easily look good on any commercial music video; so a note to music-makers – you can probably create effects on the C64 or Amiga just as good as those on a thousand pound bundle of chips.

The demo itself does not contain music because that depends on what we play on the hi-fi.

Dates for new SSI releases

Overrun ▪ Out Now ▪ £24.99
First over Germany ▪ Late April ▪ £24.99
Heroes of the Lance ▪ Late May ▪ £9.99/£14.99
Storm across Europe ▪ Early July ▪ £24.99
Curse of the Azure Bonds ▪ Mid July ▪ TBA

Core!

Based on the epic novel by Jules Verne, Journey to the Centre of the Earth takes you on a perilous adventure to the very depths of the earth. It should be out as you read this.

Releases from US Gold

● **Vigilante**

When there's no-one left to fight crime, who're you gonna call? – The Vigilante. Skill and courage are the Vigilante's hallmark of success. His superb skill in using a combination of jump kicks, rapid fire punches and acrobatic manoeuvers will stand him in good readiness. His flawless use of nun-chakus, a weapon of kung-fu, will enable him to meet his opponents head-on in this action-packed combat game.

The game features five different levels, comprising Main Street, The Junkyard, Brooklyn Bridge, Back Street and the Girders construction scene. Each level contains a combination of different street gangs led by a giant of a gang leader.

● **Forgotten Worlds**

Forgotten Worlds features a two-player interactive game, full-screen playing area and some very hot graphics and animation. So what's it about?

Emperor Blos, the God of Destruction, has begotten eight evil gods who were destroying all known civilisation.

Destroyed cities turned into ruins and became known as "Forgotten Worlds", but the spirit of people's angry minds created tow super-warriors to fight back against the evil demons and get back at Blos.

Their task is awesome. Emperor Blos is protected by three of his demi-gods – the Golden Dragon, the God of Destruction and the Paramedum.

Forgotten Worlds is out now, at £9.99 on cassette, £14.99 disk.

Ian + Mic

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PCW PATCH

Scanned reward

Christopher Bice of Kingsbridge, Devon, asks me about scanners for the PCW. For those who don't know, a scanner runs over a picture or page of writing and turns it into a graphics file that can be used in a graphics or DTP prógram.

Well, no hand scanners I'm afraid – the ones you see advertised in *Express* may well plug into your RS232 but there's no software to make sense of the data coming in (unless you are handy at programming).

There's *MasterScan* for the 8256 and 8512 (but not the 9512 – sorry Christopher!), an ingenious device that fits on your printer head and scans whatever is in the printer – but it's not very detailed and text smaller than the words 'YOUR FORMAT' at the top of this page wouldn't come out legibly. Handy and relatively inexpensive at £69.95 from Database on 0625 878888.

Perhaps the only real option is to buy a digitiser, which converts images from your video into graphics data. Rombo (0506 414631) does one for £79.95 and Electric Studio (0462 834864) for £99.95.

Rombo also will digitise pictures for you – you send Rombo a disk and the pictures and they put the digitised result on the disk for you. Costs £11.50 a disk, so not for regular use!

Ankient Greecs

There is an argument that recurs in computer magazines every few months about whether 'disk' should be spelt with a k or not. Many erudite and vitriolic letters are exchanged and the Ancient Greeks end up getting blamed for everything for having a letter k but no c when the Romans had a letter c but no k.

To the delight of ancient purists, *LocoScript 2.28* is now out, which supports Ancient Greek as well as the modern version which *Loco 2* has always done. You can cope with all your breathing and also digamma, sampi and lunate sigma, which are not disorders of the internal organs but arcane Greek characters (though most disorders of the internal organs have Greek names, of course). Further info from Locomotive on 0306 740606 – *LocoScript* costs £24.95.

Small is... unreadable

A reminder that you can get really small LocoScript type on an 8256 or 8512 by selecting pitch 17 with (+P17) and half-line spacing with (+LS1/2). Ideal for the small print at the bottom of contracts.

But not cigarette

The words alcohol, coffee and hashish are all Arabic in origin. What this signifies is anyone's guess, but now out now from Locomotive is its Arabic word processor which allows you to type left-to-right in those languages if you want to. Euro-Arabic *LocoScript* costs £85. Versions for Urdu and Farsi are also available and, if you don't know which countries use those languages, it's doubtful that you'd want to buy the programs.

Basil Pigg

QL corner

QUANTA Sub-groups

Quanta, the QL Users and Tinkerers Association, supports a number of sub-groups around the country. If you live near one of these groups, and you would like some social interaction with like-minded individuals, why not go to one of their meetings. You don't have to belong to *Quanta*.

SUB-GROUP	CONTACT
Essex	Trevor Watson, 9 Lucy Gardens, Dagenham Essex (01-592 5928)
Solent	Graham Evans (042 121 3350)
Mid-Anglia	Peter Rowell, 347 St Neots Rd, Hardwick, Cambs
Leicester	Peter Ash, 53 Woodland Rd, Leicester (0533 766587)
Birmingham	Mike Bedford-White, 16 Westfield, Acocks Green (021-707 3100)
Mid-Cheshire	Alex Robertson, 12 Bude Close, Crewe, Cheshire (0270 500565)
Belfast	Stephen Roper, 34 Pretoria St, Belfast (0232 669586)
Merseyside	Don James, 3 Barnard Rd, Oxton, Birkenhead (051 652 7366)
Newcastle	Dennis Crow (091-266 5175)
Northampton	Terry Harman, 304 Obelisk Rise, Northampton (0604 842875)
Isle of White	Richard Howe, Cove Farmhouse, Ventnor (0983 79496)

Cheap QLs

If you want a spare machine, the cheapest source of QLs at present appears to be EEC Ltd – tested (JM ROM) machines without power-supplies for £65. This is just the basic machine, no manual or software, and ideal as a backup machine, or for networking.

EEC Ltd is at **18-21 Misbourne House, Chiltern Hill, Chalfont St Peter, Bucks.** (0753 888866)

John Torofex

Speedy Solution?

Quanta Secretary Phil Borman recently spent a lot of time benchmarking Digital Precision's DOS Emulator, The Solution, comparing it with the real thing, an Amstrad PPC, and a couple of other DOS emulators: an Atari running PC Ditto, and an Amiga running Transformer.

The Solution running on a QL was the slowest emulator by a considerable margin, but looked much more respectable when running on an Atari fitted with Strong Computing's QL emulator; it was almost as fast as PC Ditto on the Atari, and faster than the Amiga/ Transformer combination.

A comparison between the Amstrad PPC and The Solution running on a standard QL showed that The Solution ranged between 2.8 times slower than the PPC when formatting a disk and 92 times slower running the PCW Trilogic benchmark. The median factor was 19.6.

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BEEB BOX

Scanner delivers

A wapping great new toy this week for the Model B. Watford Electronics has come up with what must be the first BBC Micro add-on for a twelve month.

Previewed at its Open Day in the Spring, it's a hand-held scanner capable of 200 dpi. It's the standard half-width affair (4 inches). Watford's ROM software scans images into the BBC's highest resolution, Mode 0. It just happens that Watford's own *Wapping Editor* is the premier desktop publishing program for the red-keyed wonder.

Watch out if you've already got something hanging off the 1Mhz bus – because the scanner needs it too.

A few words

I'm used to using my spelling checker software to help me solve newspaper crosswords, so I suppose I shouldn't be too surprised to see Akom come up with a whole load of Times and Sun crossword puzzles on cassette and disk. I'm glad it didn't forego the temptation of including a clue by clue help facility so that I can see how really devious the deviser of the puzzles was. For afficionados, the Times Jubilee Puzzles 1932-1987 gives a flavour of the changing styles over the years. Prices from £7.95 cassette, £17.95 disk.

I'm game

Apparently Fourth Dimension held an open day on 15th May at which its new release *White Magic* was well received.

Mmm, because Steve Botterill didn't send me an invitation I'm not sure I should comment. Always fair however, I welcome it as something a bit different from the normal shoot-'em-up but question its technical merits. It's in the shops now for the full range of Acorn machines.

Two trickier sets of extra courses for the *Holed Out* golf simulation have also teed off and you don't have to own the original game to play them because it's included on all the disks. Price is also down, so if you didn't play first time around you might now reconsider a round (groan).

Picture this

Same people, different label: Impact Software has spotted a black hole in the BBC Market and is launching a cheap £9.95 art package called *Art Studio* at it.

Press Dabs pilercom

An interesting example of reverse engineering from Dabs Press, with the release of *ABC65*, a compiler which takes *Archimedes BASIC V* programs and makes them work on the BBC Micro as 6502 machine code. The Archimedes is plainly a better program development environment so it sort of makes sense. The main and obvious problem of finding enough space in a BBC Micro to hold the code is overcome by using sideways RAM storage where available. One hundred page user guide and serial transfer software included. Asking price is £69.95.

Andrew Brown

MSXTRA

New games

It looks as if we will be able to purchase MSX *R-Type* in the UK, a game released here on all formats bar MSX quite a while ago. For the uninitiated, *R-Type* is a *Nemesis*-type shoot-'em-up, and was well received on other formats.

The version soon to be available in the UK is a Japanese import and will be supplied on ROM. Supplies will be fairly limited, so if you wish to reserve a copy, I suggest you contact Nightdare Ltd of Torquay, (Tel 0803 606146). Nightdare also has a selection of other Japanese games on ROM, and are always on the lookout for new titles from Japan.

Drive crazy

I am still being asked if it is possible to purchase MSX Disk drives in the UK. I think the only way that you are likely to obtain one is by advertising in the classified section of Express. MSX drives are like gold dust at the moment, and even second hand ones fetch high prices. Note that you can use any MSX drive with any MSX computer – for example a Sony drive will work with a Toshiba and vice versa. I may have good news regarding MSX Disk drives shortly – a company I am in contact with believe that they can obtain the Philips Disk Drives, and will let me know...

French company Titus has informed me that the next title due out on the MSX will be a game called *Pipeline*, and it should be available this September.

The last title from Titus for the MSX was *Crazy Cars*, and this was supplied on ROM, so maybe *Pipeline* will also be available in this form. I hope so – tapes are a pain in the ... um ...neck.

Grandslam entertainments has kindly sent me about ten of its budget Bug Byte games to try, eg *Turmoil* and *Timetrax*, keep reading this column for my impressions

BASIC problem

Wayne Morrison of Gateshead writes asking if anyone has had problems loading the game *Army Moves* on the Toshiba HX/10, as he has tried all the various LOAD, BLOAD etc commands, but cannot get past the loading screen. As this is one of the few games I don't have in my possession, can any readers help? Write to *MSXtra* with your solution.

Wayne also asks why, when he tries to place five sprites on a line in a BASIC program, one of them disappears. Well Wayne, this is because the MSX 1 video display processor will only allow four sprites per line, even though you can define up to 256 sprites, and place 32 of them on screen at once. The MSX 2 has a more advanced video processor, and it allows you to place eight sprites on each line, and each sprite can be multi-coloured unlike the single colour sprites on MSX 1 – and before anyone writes in to say they have seen multi-coloured sprites on an MSX 1, this is done by using more than one sprite, and by using a different colour on each sprite you can make up what appears to be a multi-coloured sprite.

Keith Neal

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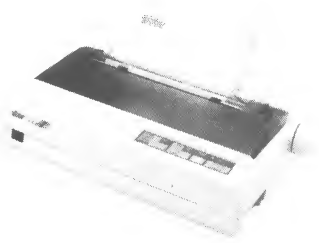

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ARCHIMEDES LORE

New blood

It's hard to believe the bright young thing of *Express* columns could have changed hands so soon, but here I am. To be quite open from the start, I'm a Beeb man at heart having come to the Archie from many fun-packed years of 32K computing.

It was a sorry day when I had to say goodbye to the Beeb, but time moves on and the Archimedes offers such a lot, as well as running nearly all the well-written Beeb software.

I went for the Archimedes 310, even though the A3000 had already been announced. This was a conscious decision on my part, as I still believe the 310 has better upgrade potential, and you can also fit a hard disk inside the case. It's also good to have a serial port fitted as standard, and there are plenty of expansion cards already available forthe machine (who prefers the term "podule"?).

I've still to work through all the wonders of RiscOS, but I know that Acorn really sees it as the icing on the cake as far as the Archie's concerned.

Rumour has it that the company is quite prepared to see the ARM chipset go to other manufacturers, but would be unwilling to let them have the operating system on an OEM basis.

Printer drivers

Acorn supplies Epson FX80 and PostScript printer drivers with RiscOS, which cover many possible printer types. There is also an HP LaserJet Plus driver, though, which is not in such wide circulation, but is available if you ask Acorn nicely.

It's quite possible, therefore, to share a printer by means of a switch box or on a network with other computers, particularly PCs. It's probably also possible to swap LaserJet print files sent to disk, with their PC equivalents.

Quick RAM disk

If you would find a RAM disk a convenient addition to your desktop, you might like to know that there's a really easy way to create one.

Call up the task display so that it's showing all the little usage histograms and drag the one labelled RAM disk with the mouse. You can pull it out from left to right and the free memory bar moves in by a corresponding amount.

When the RAM disk bar has reached the level you want, exit the task display and you'll find the RAM disk icon will have been added to the icon bar, and is ready for use with the full RiscOS RAM filing system.

It's certainly possible with the PostScript driver. A friend of mine regularly produces PostScript output from Archie applications and transfers it to his PC which is equipped with a PostScript interpreter for his HP InkJet printer. And some very fine results he gets, too!

Bertram Carrot

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Problems with your computer? Express's Agony column has the answer. Write in strictest confindence to Uncle Techtip.

Best tips win a freebie – so don't forget to tell us your address and machine

TIP

PET shop

In this week's *Tech Tips* (*Express* 33) section there is a letter from a reader who has recently acquired a Commodore PET.

Supersoft Still stocks (as we have for over ten years) a wide range of software and reconditioned hardware for the Commodore PET range, from the 2001 and 3000 series to the 4000 and 8000 series. We even have brand new 8296 models for sale.

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And finally, though the PET is a remarkably robust computer, we do offer a repair service. Details of this and a free catalogue can be obtained by calling 01 861 1166.

Peter Calver, Supersoft

HELP!

DRIVEn crazy...

Could you please advise me on a suitable book on the Commodore 64 disks. I find the Commodore's own manual a little sparse on explanations and examples.

Tommy Darling, Renfrew, Scotland

• Buy Anatomy of the 1541 Disk drive (ISBN 0948015012) by Englisch and Szczepano published by First. The book describes the drive and DOS in full detail.

TIP

Fast code

Spectrum machine code programmers might like to know that code placed above memory location 32768 will run 20% faster than code paced below it. So all non-time critical code should be placed below to allow more room for faster code above.

P Worth, Shoreham-by-sea, West Sussex

• Fancy making your Speccy run 20% faster?

TIP

Couple of impersonations

I read with interest your reply to Christopher Gill of Clwyd (*Express* 33) concerning the writing of 6502 assembly code on the Amiga.

There are two C64 emulators that I know of. The first one is by ReadySoft called the *C64 Emulator V2*. I think this is only now available in America. It will run just about any C64 program including games. I once tried *Ikari Warriors*, which was very jerky and the music is unrecognisable. I did manage to write a simple routine to display a colour bar across the middle of the screen, which it compiled. But when it ran, it was terrible! Upon transferring it to the Commodore 64 it worked perfectly. So it *is* possible to do assembly on the Amiga and transfer it to the C64. With this emulator you get a lead to connect it to a 1541 disk drive (also available from TriLogic). I have managed to load *Airborne Ranger* using a 1541 linked to my Amiga but the game was very, very jerky!

The second emulator is called *Go! 64*. This is supposed to run C64 games on the Amiga without sprites and stuff being jerky. You can alter the raster and screen updates to get rid of the jerkiness of some games. According to the instructions, it gives you a list of games which run perfectly without glitches using the emulator, these include *Airborne Ranger*, *Pacland*, *Target Renegade* plus many other utilities and games. I bought *Go!64* from a jumble sale – it was the original disk but wrapped in a poly bag with no instructions.

The only problem is that you need a separate interface cartridge which is called Access 64 which I think is about £50 – I don't know if it's still on sale.

If any readers have one that they wish to sell or swap for Amiga software then write to me.

Julian Smith, 45 Maplecroft Crescent, Sheffield S9 1DN

TIP

RAMmed home

I was surprised to read the letter in *Express* 33 from Andrew Yates of Peterborough who could not load *War in Middle Earth* with the memory expansion fitted.

I own an Amiga 500 with an A501 memory expansion fitted and the game runs perfectly. The two disks are not copy protected so it is easy to make back-up copies of them. If you examine the directory of disk A, you should find that it contains the utility *NoFastMem* which is supplied in the system drawer on he *Workbench* disk. This is run from the startup sequence. The startup sequence on my disk A is:

```
Assign FONTS: A:
Assign LIBS: A:
Assign DEVS: A:
Assign L: A:
WB 1
Run NoFastMem
WarInMiddleEarth
```

If it is possible that some early versions don't contain *NoFastMem*, you should copy it to disk A from the *Workbench* disk, then alter the startup sequence to read as above.

Paul Scowcroft, Bolton, Lancashire

HELP!

1st choice

I have just purchased an ST, and am looking for a good cheap word processor for my college project and to write letters to certain mags (grovel grovel).

Also how do I go about setting up an external 1 meg drive as drive A? Also which is the best version of BASIC for the ST as the BASIC supplied is bad. Also I too would like binders so come on, make some!

C. Vickers, Middlesborough, Cleveland

• It's the public domain for you, young man! Before *1st Word* gained the 'Plus' extension to its name, the program was a freebie word processor for the ST. The early version is still available from any good PD supplier for 3 quid or so and is very usable.

The public domain is also the place to look for a utility which will allow you to boot from an external drive and to treat that drive as drive 'A'. Call Goodman PD on 0782 335650 who can supply you with all your PD wants and needs.

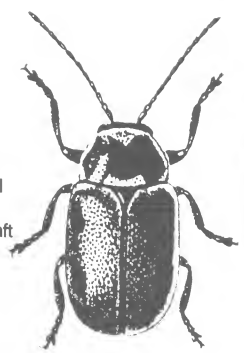
A decent BASIC? Contact HiSoft on 0525 718181. The company markets a couple of replacement BASIC packages for the ST – notably *Power BASIC* – and will be happy to supply you with a copy.

No chance of binders at the moment – we've only had one or two requests.

BUG OF THE WEEK

Did you know that there is a bug in *Interceptor* which allows you to land your F-18 on the enemy carrier and get re-fuelled and re-armed? You can do this as many times as you like, even after multiple missile hits. Have the Russians been swigging too much Vodka?

Andy Steele, York



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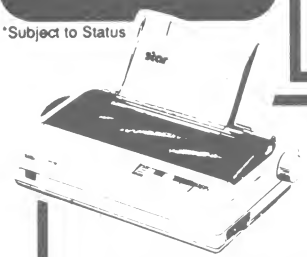

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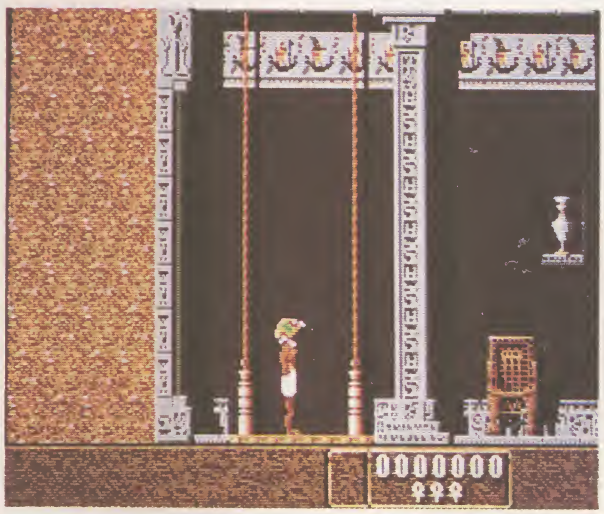
Eye to eye

Rik Haynes sees in six new releases, including the latest from Logotron

EYE OF HORUS
Logotron

The latest release from Logotron, *Eye of Horus* is being programmed by the famous Denton Designs team – resonsible for the likes of Ocean's *Mutants* and Beyond's *Shadowfire*.

Eye sees you in the role of an Horus, a good-guy out to right some wrongs in an ancient Egyptian arcade adventure containing some novel surprises and twists. *Eye of Horus* is out soon on C64, ST, Amiga and PC.



AFTER THE WAR
Dinamic

Spanish software company Dinamic has reportedly been working on this one for the past three years... but then again, if we at *Express* worked in Spain we wouldn't get that much work done either!

Gamewise, *After the War* incorporates "giant sprites coupled with very agile movement" as you escape post-holocaust New York (but how can you tell the difference between pre and post-holocaust New York?).

FREDDY IN MANHATTAN
Dinamic

Following on from the less-than-successful Ocean title *Freddy Hardest* of 1987, *Freddy in Manhattan* sees our tough guy in New York (looks like the staff at Dinamic like the Big Apple, doesn't it?) taking on some drug peddlers. *Freddy in Manhattan* should be out in October on Spectrum, C64, CPC, ST and Amiga.

GRAND PRIX MASTER
Dinamic

The first title due for release out of the trio of Dinamic games previewed here, *Grand Prix Master* is a racing simulation of World Championship 80cc motorcycling. Apparently it's being endorsed by Jorge Martinez "Aspar" – don't worry, it didn't mean anything to us either. *Grand Prix Master* is due out in September on Spectrum, C64, CPC, ST and Amiga.

LONE WOLF
Audiogenic

Lone Wolf – The Mirror of Death is the first in a series of games based on the Joe Dever *Lone Wolf* fantasy novels. This one puts you in control of Lone Wolf, the last Kai Master, in an arcade adventure out soon on Spectrum, C64, CPC, ST, Amiga, PC, BBC and Electron.

ANIMAL GAMES *EAS*

Not much guff on this one, we're afraid, except that it's yet another joystick-waggling sports sim with a "new" twist.

This time, originality comes in the form of the sports characters being various animals such as crocs, elephants and monkeys. Wonder if you get the chance to pig-out, or whether you can just duck it? *Animal Games* is due for release shortly on C64, ST and Amiga.

● Nothing outstanding this week, except for Mindscape's expansive *Colony*. Rather lacklustre attempts from Germany with *Circus Attractions* and *Spherical*, left enough space for *African Raiders* to race by. Last and by every means least, came the sordid *Astaroth*.

CIRCUS ATTRACTIONS

Golden Goblins

C64 £9.99cs, £12.99dk
Also on ST, Amiga, PC

• Throwing up on the Amiga

• C64: Sharp as a knife

All the fun of the circus can be yours with this new joystick waggling sports sim from German software company Golden Goblins.

GAMEPLAY *Circus Attractions* is split into five events: trampolining, tightrope walking, juggling, knife throwing and jumping clowns. You load up the event, waggle your joystick and bung your name in the high score chart. Interesting or what? Replacing an athlete with a clown doesn't make up for the same old tired gameplay.

GRAPHICS AND SOUND The backdrops and sprites do their assigned tasks reasonably well, but they're not cute or comic enough. Sound consists of the odd jingle and spot-effect.

OTHER VERSIONS Obviously, the ST and Amiga visuals are superior – unfortunately the gameplay's still the same. We haven't played the PC version yet.

EXPRESS VERDICT Okay, Golden Goblins' previous release, *Grand Monster Slam*, was cute, if a little shallow – but *Circus Attractions* isn't fun to play, the graphics and sound aren't particularly stunning, and the whole concept is stale.

★

Rik Haynes

AFRICAN RAIDERS

Coktel Vision

ST £19.99dk
Also on Amiga, PC

***Raiders* slipstreams along the same tracks as *Crazy Cars*, *Lombard Rally* and *Test Drive 2* in the racing stakes, though this time you're firmly off-road. But does it make it out of the pits?**

GAMEPLAY You're at the wheel of a four-wheel-drive buggy on a five-stage race from Tunis to Dakar. Although the routes are marked out, you can choose to go off-road across the hostile terrains and use your on-board compass and satellite navigation to get ahead. In this case it's best if you have a co-pilot handy, as the way can get pretty wayout – you'll have to watch out for dunes, quicksand, oil fields, wrecked cars, water holes and stray camels. Of course, you're also up against a number of other rallyers, though there's no competition other than the best stage time involved.

GRAPHICS AND SOUND *Raiders*' visuals are competently presented – backdrops shift with ease and the buggy sprite movements handle pretty well. But there's nothing particularly spectacular here, just above-average renditions of routine code. Sound is confined to ever-present revving levels and gearchanges, though the intro music sequence funks along quite chunkily.

• Jumping for joy on the Amiga

OTHER VERSIONS Since Coktel masters most of its product on 286 and 386 PC-compatibles before porting over to ST and Amigas, there's no discernible difference between any versions in terms of graphics – just the usual PC inadequacies coming over in the sound department.

EXPRESS VERDICT Not bad for a rally adventure across one of the wilder areas of the planet, but considering the distance covered in the real thing it's a pity there's not more difference between the stages in terms of graphics and gameplay. Neverthess, an enjoyable outing.

★★★

Andy Storer

XYBOTS

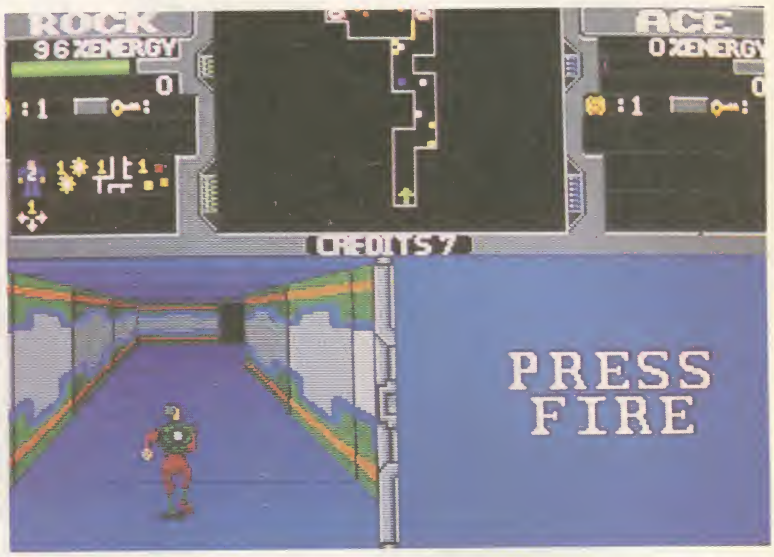
Tengen/Domark

Spectrum £9.99cs, £14.99dk
Also on C64, CPC, ST, Amiga, PC

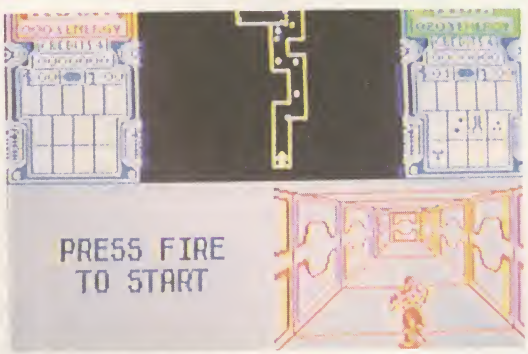
***Xybots* is a coin-op conversion of the popular Atari strategy arcade shoot-'em-up.**

GAMEPLAY Taking the role of Major Rock Hardy or Captain Ace Gunn in this split-screen, one or two-player game, you take on all manner of deadly robotic devices while travelling through a labyrinth of mazes and collecting the odd extra weapon on the way.

GRAPHICS AND SOUND Domark's done a good job in converting the coin-op's visuals. Sure, they're no great shakes – the original coin-op's weren't either. The only complaint we have with the graphics is their lack of colour.



• Rock-steady on the Amiga



• Showing your aces on the Spectrum

Sampled sound spot-effects make up the audio.

OTHER VERSIONS The ST and Amiga displays are more colourful, although surprisingly the sound FX aren't that much better than the Spectrum's. The C64 version, previewed in last week's *Express*, also looks promising. We haven't seen the CPC or PC version yet.

EXPRESS VERDICT Everything from the coin-op is here: graphics, sound, and gameplay are identical. The control movement may take a little time to master, but that shouldn't detract too much from your enjoyment.

Xybots is a simple, unassuming game – fans of the coin-op won't be disappointed by this Domark conversion.

★★★

Rik Haynes

COLONY

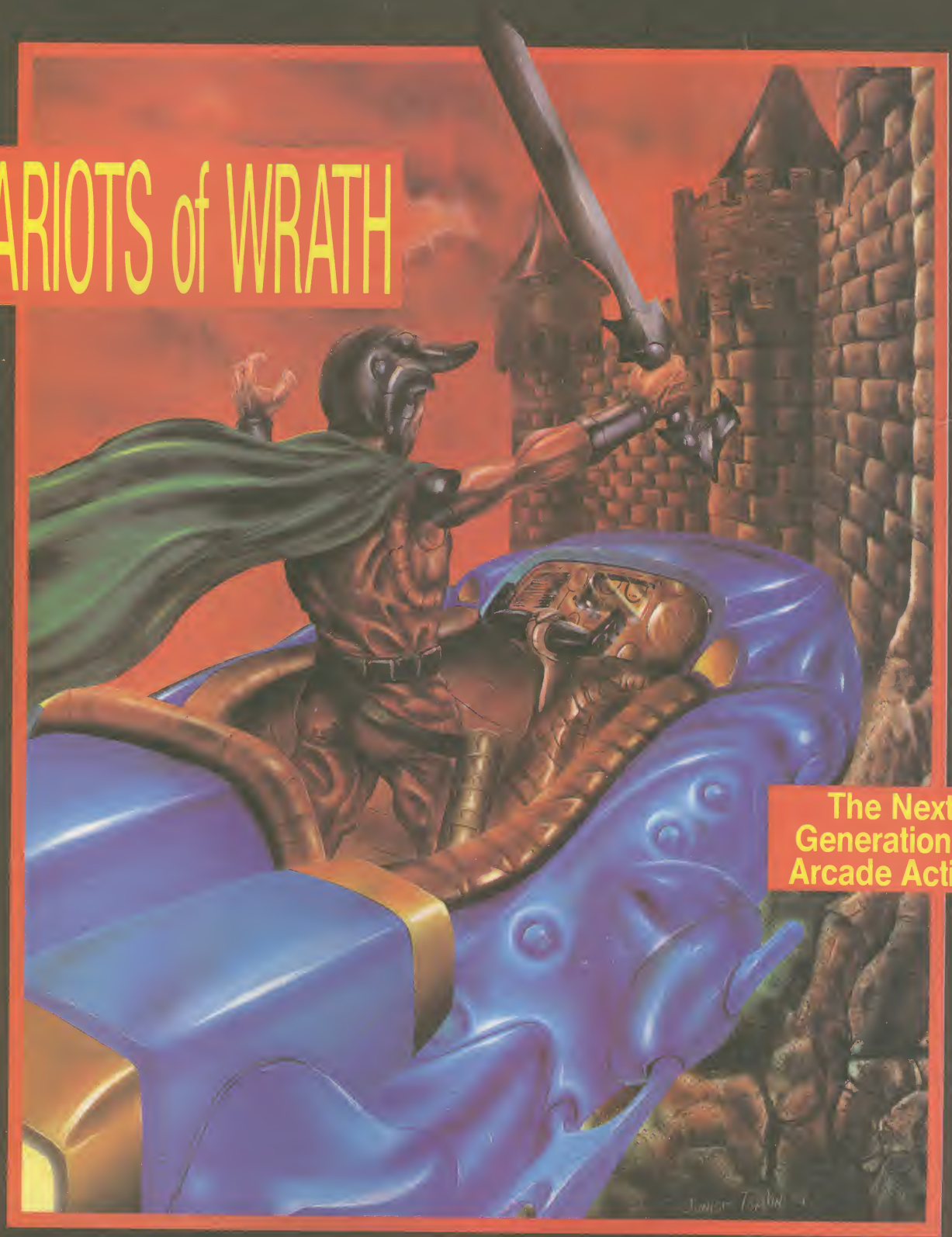
Mindscape

PC £24.99dk
Also on Ma
Currently being developed on ST, Amiga

Dare you face the one-eyed, robotic pyramids infesting the colony?

GAMEPLAY One last, desperate message is received from planet Delta 5-5: "...we have been overrun, I repeat, we have been overru..." The

CHARIOTS of WRATH



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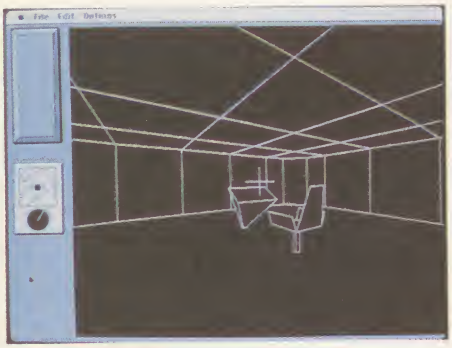
communications channel returns to a static hum and you realise that as Regional Marshal it's going to be your task to visit the planet, unravel the mystery, pick up survivors and get out – still in one piece.

You begin the game in the control centre of your DAS armoured cruiser. The room is in darkness and your first task is to locate the light switch. Once bathed in the fluorescent glow of the overhead strips, you career about the spaceship until finally getting the knack of controlling your movement. Traversing the airlock can also be a problem unless you take certain precautions, but leaving the spaceship is necessary to gain access to the depths of the planet.



• Colonising the Macintosh

The colony is built on six levels, each one harbouring dark secrets and fearsome android creatures baying for your blood. Find the survivors, kill anything vaguely alien and get the hell out...

GRAPHICS AND SOUND *Colony* incorporates what Mindscape calls the 'Environment simulator'. This is a huge collection of offices, laboratories, computer rooms – even lavatories – depicted in shaded, hidden-surface 3-D. You can roam hither and thither as your heart desires, up stairs and down, in and out of rooms without any restriction of movement, save your own clumsy fumblings with the joystick.

The game opens with an insistent, repetitive ditty which will have you struggling for the sound toggle, but once into the colony you're regaled with spot effects which add to rather than detract from the overall game – nicely done.

OTHER VERSIONS *Colony* was originally available for the Macintosh, and on that machine the game excels. Faster graphics and better control of movements make the game easier to play.

EXPRESS VERDICT A thoughtfully programmed game which places you right in the heart of the action. Unfortunately, the greater effort in producing *Colony* has been expended on creating the graphics, leaving little thought for gameplay. Consequently, after an hour or so of wandering and killing, you stop caring about the survivors and begin to wonder what the point is.

★ ★ ★ ★ **Fielding Mellish**

ASTAROTH

Hewson
ST £24.99dk
Also on Amiga

***Astaroth – The Angel of Death* has had plenty of pre-release hype surrounding its so-called sexual content, but is this mere idle titillation?**

GAMEPLAY As you may of guessed already, *it was* just mere titillation, as this is just another arcade adventure which adds nothing to the genre except for help feeding claims that computer gamesters are, on the whole, immature male teenagers who'd rather waggle their joystick than have a social life with the opposite sex (every innuendo intended).

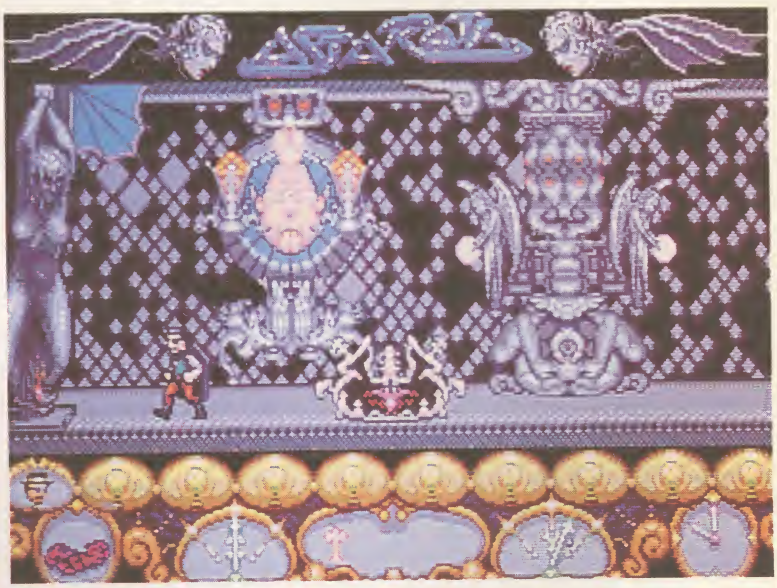
GRAPHICS AND SOUND Nothing outstanding visually, apart from the odd girlie breast here and there (ooeerr). Of course, these adornments may be there to make up for the lack of any originality, or perhaps it's the chronically small sprites, or it could be the seen-one, seen-them-all backdrops. Who knows, or even cares? Audio's no great shakes either.

OTHER VERSIONS We haven't seen the Amiga version yet, but we doubt whether there will be much of a difference, except for better audio quaility.

EXPRESS VERDICT Sorry Hewson, we weren't impressed with this release at all. We're afraid dodgy stereo-typed sexual overtones just don't hide boring, repetitive gameplay. Filling out the poll tax form was more fun than playing *Astaroth*. Sexploitation is absolutely pathetic.

★ **Rik Haynes**

• The loading screen: You get the idea?



• The naked truth: It's rubbish!

SPHERICAL

Rainbow Arts
Amiga £19.99dk
Also on ST, C64

Accompany the magic starball through several layers of platforms and fearsome creatures, reach the dragon, marvel at his reptilian beauty – then kill him.

GAMEPLAY Despite the magical spiel on the packaging, this is just another platform game. "Nothing wrong with that", I hear you cry, and normally I'd agree, unless the game happens to shove you into the role of a wizard – a badly drawn wizard – careering around an uninspiring playfield avoiding tired spinning balls, ghosts etc.

The objective is to progress through the levels, reach the dragon and put an end to his reign of evil and terror. All pretty standard stuff.

GRAPHICS AND SOUND It's difficult to control and avoid sprites barely discernible to the naked eye, and a garish burn-out of lurid backdrop colours that will have you longing for a mono monitor do not a good game make.

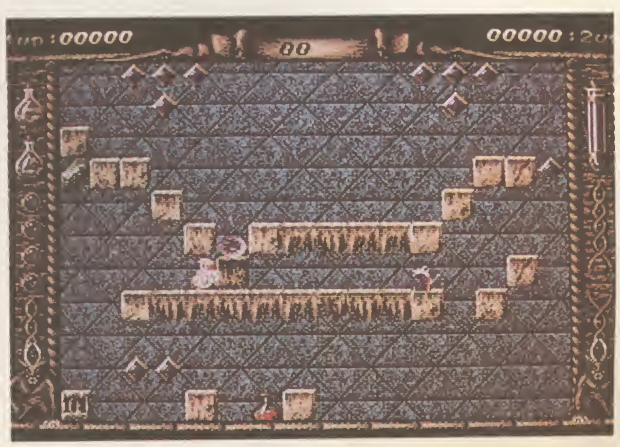
Sound? Nothing to write home to ma about, but adequate, i.e. a pretty ordinary silicon rendition of what the author thought was a suitably eerie opening tune, and a few crash bang spot effects if you bump into something or waggle your wand.

OTHER VERSIONS The Amiga version appears to be a direct port from the ST, with the addition of digitised sounds.

Graphics in the C64 version are absolutely appalling, the machine is worthy of far better than this. C64 sounds are almost an exact imitation of those provided in the ST game.

EXPRESS VERDICT We were playing this type of game two years ago, and it wasn't that exciting then either. Spherical is almost identical to US Gold's game Solomon's Key, so owners of this game need'nt bother looking here. Even if you didn't buy Solomon's Key, Spherical wouldn't be worth considering, because it's just utterly forgettable.

★ ★ **Fielding Mellish**



• Amiga: Solomon's Key all over again

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The 25 runners-up each receive a copy of the *Sleepsafe* Virus Protection program. They are: **Maria Wardall**, Raunds, Northants; **Ian Underhill**, Halesowen, West Midlands; **S Gulliver**, Southampton; **Daniel Welch**, Blackheath, West Midlands; **D Ford**, Liphook; **Joy Nantais**, Sprowston, Norwich; **Gary Bird**, Mitcham, Surrey; **D Ball**, Malvern Link, Worcs; **Edward Walker**, Walthamstow, London; **Mark Abbott**, Nottingham; **PJ Flint**, Wellingborough, Northants; **P Bennett**, Long Buckby, Northants; **PR Dolphin**, Petersfield, Hants; **H Smith**, London; **Derek McMehamin**, Alexandria, Scotland; **P Sheld**, Dover; **D Healy**, Bristol; **John Latham**, Brighton; **A Akande**, Liverpool; **Nick Ryan**, Downham Market, Norfolk; **DO Evans**, Conwy, Gwynedd; **Paul Frazer**, Barrow in Furness, Cumbria; **DW Howells**, Witham, Essex; **Andy O'Neill**, Liverpool; **T Jackson**, Altrincham, Cheshire.

Congratulations – your virus busters should be with you shortly.

Also smiling this week will be **GJ Galloway** of Liverpool, who wins £100 of software for his machine in the Questionnaire Prize Draw. **Gerald Irwin** of Gravesend and **Steve Seager** of Royston win £30 each as second prizes.

Note: This week's Ken Mosley column has been withheld on legal advice.

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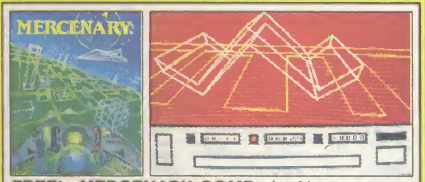

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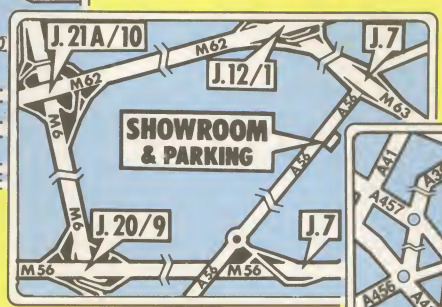

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